UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2003/00553 (LAA)
2003/00620 (NLAA)

June 17, 2003

Karyn L. Wood
Forest Supervisor, Wallowa-Whitman National Forest
1550 Dewey Ave.
P.O. Box 97814
Baker City, OR 97814

Re: Endangered Species Act Section 7 Formal and Informal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Effects of USDA Forest Service Ongoing and Proposed Actions in the Imnaha Subbasin, Grande Ronde Basin, Wallowa County, Oregon.

Dear Ms. Wood:

Enclosed is a document prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of USDA Forest Service ongoing and proposed actions administered by the Wallowa-Whitman National Forest in the Imnaha Subbasin in Wallowa County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed actions are not likely to jeopardize the continued existence of ESA-listed Snake River (SR) Basin steelhead *(Oncorhynchus mykiss),* SR spring/summer chinook salmon, and SR fall chinook salmon *(O. tshawytcha)*, or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries included reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the impact of incidental take associated with these action.

This document also serves as consultation on essential fish habitat (EFH) for chinook salmon under Public Law 104-267, the Sustainable Fisheries Act of 1996, as it amended the Magnuson-Stevens Fishery Conservation and Management Act.

If you have any questions regarding this consultation, please contact Catherine Broyles at 541.975.1835, ext. 223 or Eric Murray at 541.975.1835, ext. 222, of my staff in the Oregon Habitat Branch.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Dorothy Mason
Bob Mason
Mark Roberston

Endangered Species Act - Section 7 Consultation
Biological Opinion

&

Magnuson-Stevens Fishery Conservation and Management Act
Essential Fish Habitat Consultation

USDA Forest Service and USDI Bureau of Land Management Ongoing and Proposed Actions for 2003-2006 in the Imnaha River Subbasin, Oregon

Agency:	USDA Forest Service
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
Date Issued:	June 17, 2003
Issued by:	for Michael R Course D. Robert Lohn Regional Administrator
Refer to:	**2003/00553 (LAA), 2003/00620 (NLAA)**

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1. INTRODUCTION

1.1 Consultation History

On May 1, 2003, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter dated April 28, 2003, with an attached biological assessment (BA), from the Wallowa-Whitman National Forest Service (WWNF) requesting Endangered Species Act (ESA) section 7 formal consultation regarding the potential effects of the proposed and ongoing actions included in the Imnaha River Subbasin Multi-Species Biological Assessment (2003-2006) on Snake River (SR) steelhead, SR spring/summer chinook salmon, or fall chinook salmon and their designated critical habitats. The project area is in Wallowa County, Oregon. Projects addressed in this document will be administered by the WWNF.

The WWNF determined that Snake River (SR) Basin steelhead, SR fall chinook salmon, and SR spring/summer-run chinook salmon may occur within the project area. The SR steelhead were listed as threatened on August 18, 1997 (62 FR43937) and SR spring/summer chinook salmon were listed as threatened on April 22, 1992 (57 FR 14653). SR fall chinook salmon were listed as threatened on April 22, 1992. Protective regulations for SR steelhead were issued under section 4(d) of the ESA on July 10, 2000, (65 FR 42422). Protective regulations for SR spring/summer and SR fall chinook salmon were issued under section 4(d) of the ESA on April 22, 1992 (57 FR 14653). The proposed project is within critical habitat for SR spring/summer and SR fall chinook salmon, designated on December 28, 1993, (58 FR 68543).

This document reflects the results of the consultation process that included information provided in the BA, a site visit to the proposed action area August 14-15, 2002, and follow-up correspondence. During this consultation process, the WWNF worked closely with NOAA Fisheries to develop conservation measures for actions addressed in this consultation. On May 8, 2003, the WWNF, NOAA Fisheries, Oregon Department of Fish Wildlife (ODFW), and the local water user met to visit the Summit Creek diversion site. The purpose of this visit was to observe the diversion site, conditions at the diversion, the screening facility, and depositional area below the diversion to gain a better understanding of what is occurring at this site. Potential solutions to the current problems at this site were discussed.

Although further information was gained during this visit, information in the BA regarding the effects of Summit Creek diversion is still incomplete. Consequently, NOAA Fisheries sent a letter to the WWNF on May 28, 2003, stating that consultation on the Summit Creek Diversion cannot be initiated until the necessary information is provided. The letter also stated that a biological opinion would be prepared for the other actions included in the BA. On June 5, 2003, NOAA Fisheries provided a draft biological opinion to the WWNF for their review.

The objective of this biological opinion (Opinion) is to determine whether the actions described in the in BA, after setting aside the Summit Creek Diversion, are likely to jeopardize the continued existence of SR steelhead, SR fall chinook salmon, or SR spring/summer chinook salmon, or result in the destruction or the adverse modification of the SR spring/summer chinook salmon critical habitat. The objective of EFH consultation is to determine whether the proposed actions may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to essential fish habitat (EFH) resulting from the proposed action.

1.2 Proposed Actions

This document addresses the ongoing and proposed actions described in the Imnaha Subbasin Multi-species BA. In the northeast corner of Oregon in Wallowa County, the Imnaha subbasin contains the Big Sheep, Lower Imnaha, and Upper Imnaha watersheds. The WWNF has determined that some of the actions included in the BA are "not likely to adversely affect" (NLAA) SR spring/summer chinook, SR fall chinook, and SR steelhead, while other actions are "likely to adversely affect" (LAA) SR spring/summer chinook, SR fall chinook and SR steelhead. The NLAA actions are expected to have insignificant, discountable, or wholly beneficial effects to listed species addressed is this Opinion, while the LAA actions have more than a discountable chance of causing adverse effects to the listed species addressed in this Opinion. This Opinion serves as the NOAA Fisheries concurrence on the NLAA actions, however they are not analyzed in detail as the LAA actions are. Table 1 summarizes the proposed actions that will be described in the following narrative in sections 1.2.1 though 1.2.6 of this document.

The actions contained in the Imnaha Subbasin Multi-species BA include a detailed set of conservation measures designed to minimize or avoid the adverse affects of each action to ESA-listed species and their habitats. These conservation measures are described with their respective actions on pages 59 through 366 in BA. These conservation measures were developed during the consultation process with assistance from NOAA Fisheries and will apply to every action proposed. The conservation measures will also be provided in writing to every party that will supervise completion of these actions. NOAA Fisheries regards these conservation measures as integral components of the actions contained in the BA and considers them to be an essential part of the proposed action. Actions that deviate from them will require additional site-specific consultation with NOAA Fisheries.

Table 1. Summary of Proposed Projects and Effects Determinations

Project Name	**SR Chinook (Spring/Sum-mer and Fall)**		**SR steelhead**	
Effects Determination	NLAA	LAA	NLAA	LAA
Vegetation Management Activities				
Spooner Vegetation Management	**X**		**X**	
Non-Commercial Thinning	**X**		**X**	
Harvest of Special Forest Products	**X**		**X**	
Upper Imnaha Fire Reintroduction	**X**		**X**	
Range Management Activities				
Cattle and Horse Allotments (26 allotments)	**X**		**X**	
Marr Flat Cattle and Horse Allotment		**X**		**X**
Administrative Horse Pastures (5)	**X**		**X**	
Recreation Activities				
Developed Recreation Use	**X**		**X**	
Dispersed Recreation Use	**X**		**X**	
Outfitter and Guide Permits	**X**		**X**	
Trail Use and Maintenance	**X**		**X**	
Imnaha River Trail Rock Slide Removal	**X**		**X**	
Toilet Replacement	**X**		**X**	
Campground Water System Replacement (4 sites)	**X**		**X**	
Indian Crossing Campground Improvement	**X**		**X**	
Lick Creek Trail Bridge Replacement	**X**		**X**	
Big Sheep Trail Bridge Replacement	**X**		**X**	
Crazyman Trailhead Relocation and Land Exchange	**X**		**X**	
Transportation Activities				
Cow Creek Bridge Replacement	**X**		**X**	

Project Name	SR Chinook (Spring/Sum-mer and Fall)		SR steelhead	
Effects Determination	NLAA	LAA	NLAA	LAA
Neiman Bridge Removal		**X**		**X**
Lick Creek Bridge Replacement		**X**		**X**
Big Sheep Creek Bridge Abutment Repair		**X**		**X**
Bear Gulch Bridge Superstructure	**X**		**X**	
Culvert Repair/Replacement	**X**	**X**	**X**	**X**
Roads to Trails Conversion	**X**		**X**	
Road Maintenance		**X**		**X**
Special Use Activities				
Imnaha Sprinkler Association	**X**		**X**	
Summit Creek Diversion		**X**		**X**
Administrative Activities				
Lick Creek Guard Station	**X**		**X**	
College Creek Guard Station	**X**		**X**	
Thorn Creek Guard Station	**X**		**X**	

1.2.1 Vegetation Activities

Before the settlement of eastern Oregon by Euro-Americans in the late 1800s, forested stands within the Imnaha subbasin were characterized by mosaics of different vegetation types. Perpetuated by the influence of natural disturbances such as insect attacks and forest fires, the landscape supported stands ranging in composition from single storied stands dominated by ponderosa pine, western larch, and Douglas-fir to multi-layered stands of grand fir, Engelmann spruce, and subalpine fir. The goal of the proposed vegetation management projects is to restore the historic vegetative patterns to each of the proposed action areas.

Spooner Vegetation Management Project (NLAA)

Activities associated with the Spooner Project include aspen stand improvement, commercial thinning, crown release, group and individual tree selection, mechanical fuel reduction, natural fuels burning, and understory thinning. No trees will be harvested within 300 feet of fish-

bearing stream, within 150 feet of perennial non-fish-bearing streams, or within 100 feet of intermittent streams.

Though low intensity prescribed fire would be allowed to enter PACFISH designated riparian habitat conservation areas (RHCAs)[1], no direct ignition would occur within RHCAs. Refer to Map 2-2 and Table 12 on pages 67-69 of the BA for the prescription, number of acres, and proximity to fish habitat in each unit within the proposed action area.

Approximately 53 miles of roads within the Spooner action area will be closed to standard motorized vehicles and an additional 29 miles of road will be decommissioned. Closing and decommissioning a sum total of 82 miles of road will decrease the miles of open road density by 25% within the proposed action area. In addition, approximately 24 miles of road will be hydrologically stabilized and 19 miles of road will be maintained. No new roads will be built as a part of this project. For details regarding road maintenance, stabilization, closure, and decommissioning, please see the transportation section of this document. The location and proposed schedule of work for each road within the Spooner project area can be found on Map 2-5 and in Table 13 on pages 70-73 of the BA

In addition to the activities described above, three existing exclosures will be hand planted with native riparian vegetation and upland native species of hardwoods and full restoration treatment will be conducted at four separate locations within the proposed project area. The exclosures are around headwater springs for the Road Creek, Rich Creek and South Fork Morgan Creek. The Road Creek exclosure is in T3S, R47E, Section 14, SW quarter of the NW corner (legal description using Willamette Meridian). The South Fork Morgan Creek exclosure is in T4S, R47E, Sections 3 and 10. The Rich Creek exclosure is in T4S, R47E, Section 1, SW quarter of the SE quarter. Activities associated with gully restoration will include placing large pieces of wood in and around the gully, correcting road drainage and culvert concerns, and planting in and around the gully with native hardwoods. Planting will be done by hand and the large pieces of wood would be obtained from off-site locations.

Two acres of meadowland adjacent to Road 3930-259 will be thinned by hand using chainsaws. Ponderosa pine measuring an average of two inches in diameter would be felled. The thinned conifer material would then be placed in and around the gully to assist in minimizing sediment input into nearby by water courses. A rutted wheel track leading into the meadow would be

[1] "Riparian Habitat Conservation Area" (RHCA means part of a watershed where riparian dependent resources receive primary emphasis and management activities are subject to specific standards and guidelines. RHCAs include traditional riparian corridors, wetlands, intermittent headwater streams, and other areas where proper ecological functioning is crucial to maintenance of the stream's water, sediment, woody debris, and nutrient delivery systerms (USDA and USDI 1995).

subsoiled, smoothed, seeded, and planted with native vegetation. Post-project monitoring of this area will entail establishing photo points and plant survival monitoring.

Non-Commercial Thinning (NLAA)
Sixteen units totaling 544 acres have been selected for non-commercial thinning. Stands of trees will be thinned to reduce stocking levels. All sixteen units proposed for treatment contain portions of land within the RHCA. When added together, the sum total of acres within the RHCA is 72 acres. All trees will be felled by hand and left on site. No mechanized equipment will be used thereby eliminating the risk of significant soil disturbance. Canopy closure will not be reduced to less then 40%. Table 14 on page 81 of the BA lists the number of acres in each unit, proximity of treatment to the stream, and the subwatershed and streams within the unit.

Harvest of Special Forest Products (NLAA)
Individuals may obtain personal use or commercial use permits to harvest firewood, post, pole, saw logs, and Christmas trees from approximately 25,366 acres of land managed by the WWNF in the Imnaha subbasin. Cutting or gathering any of the aforementioned forest products is not permitted within RHCAs.

Upper Imnaha Fire Reintroduction Project (NLAA)
The goal of the Upper Imnaha Fire Reintroduction Project (UIFRP) is to establish mosaics of open pine stands interspersed with dense pockets of smaller trees and shrubs that historically characterized the proposed action area. The proposed action area consists of 7,240 acres along the Imnaha River between river mile (RM) 55 and 58. Over a period of two to six years, the proposed action area would be treated using prescribed burns in 1,000 to 3,000 acre units. Before burning, trees will be thinned with small machinery and left on site where they will be hand piled and burned. Thinning trees before a prescribed burn will ensure that an effective yet controlled burn will occur.

The number of acres burned each year would be selected based on climatic conditions and fuel moisture content. If conditions are not favorable in any given year, burning will be postponed until the following year. Once an area has been burned, severely scorched tress or those measuring less then five inches in diameter will be felled and left on site if they are easily visible from Road 3960 and detract from the corridor's scenic landscape character, or they will be added to the Imnaha River as woody debris. Burning will occur mainly in the fall. No direct ignition will occur within RHCAs. Cool, low intensity fires will be allowed to back into RHCAs. Fires will be started at the top of ridges and burn down towards the river where it will stop at Road 3960, approximately 0.5 miles from the Indian Crossing Campground. If the UIFRP is not completed when the next version of the Imnaha Subbasin Multi-Species BA is written, a discussion of completed work and that which still needs to be done will be included. Annual monitoring reports will include updates on the status of the UIFRP.

Livestock grazing will not allowed within the burned area for two years. This would be achieved through a combination of the following methods: Riding, fencing, salting, or non-use of the entire pasture. Grazing will not occur until suitable range conditions have been achieved as determined by the range conservationist. The provisions and any alterations in use would be reflected in the Annual Operating Instructions (AOI) for the Allotments and Administrative Horse Pastures.

1.2.2 Range Activities

The WWNF proposes ongoing management of 27 active allotments and five administrative horse pastures within the Imnaha River subbasin. Allotments are divided into multiple pastures and are authorized through the issuance of one or more of the following types of grazing permits:

Term Grazing Permit. This is the permit type most commonly issued by the WWNF and specifies permitee, livestock types and numbers, grazing season, and allotment area.

Term Grazing Permit with On/Off Provision. Grazing with provisions that allow livestock to use both National Forest and private land is authorized through this type of permit. Private land typically comprises the majority of the allotment. Livestock types and numbers, grazing season, on private land are agreed to by the WWNF and the permitee. The WWNF has no control of the the management of private land that is not voluntary.

Term Private Land Grazing Permit. Livestock are authorized to graze on National Forest and private land within the allotment. Grazing management on the private lands is waived to the WWNF and the number of livestock and season of use are based on the capacity of the private lands alone.

The following list of conservation measures taken from pages 107-109 of the BA describe site-specific activities that will be implemented as a part of the range management program.

1. Forest Plan and PACFISH (USDA and USDI 1995) standards and guidelines pertaining to livestock management will be implemented within the project area. Utilization standards will be monitored according to the Interagency Implementation Team (IIT) Grazing Implementation Monitoring Module protocol. The Wallowa Mountains Zone will monitor Category 1 (perennial fish bearing streams) pastures as required by the IIT Grazing Implementation Monitoring Module, the Level I team, and the Forest Plan to assess the impacts of livestock grazing on streams and assure the attainment of Riparian

Management Objectives (RMO).[2] Additional monitoring will be done as funding allows and on a priority basis. Range personnel from the Wallowa Mountains Office have limited grazing and spawning date conflicts by altering grazing seasons within pastures where possible. Refer to the Monitoring section, and individual allotment discussion of the Range Management section of the BA and following allotment descriptions for further discussion on monitoring.

2. Four allotments in this document are not entirely contained within this Imnaha subbasin. The Log Creek Allotment contains a total of five pastures, 1.5 of which lie in the Joseph Creek watershed. The Lone Pine Allotment contains a total of seven pastures, all of which lie in the Snake River basin, except for a small portion of pasture #1. The Saddle Creek Allotment contains a total of seven pastures, 3.5 of which also lie in the Snake River basin. For this document, consultation is being requested only on grazing that occurs within the Imnaha subbasin. Consultation on pastures that lie within other subbasins will be analyzed in other consultations.

3. Livestock management in the Imnaha subbasin relies heavily on deferred grazing systems. A deferred grazing strategy delays livestock grazing on a pasture for an adequate period of time to allow forage plants time to complete reproductive seed set, recharge of root reserves, and seedling establishment, and to improve plant vigor. Within the Imnaha subbasin, spring deferment is used to allow perennial native grasses time to achieve seed set by delaying entry every second or third year. This is accomplished by dividing the spring range within an allotment into several pastures, and alternating early spring use of the pastures in a cyclic fashion.

4. Some allotments in the subbasin are managed for winter grazing wherein livestock are turned out in November or December at higher elevations and moved to lower benches or on to private land during some period of the allowed season. During times of severe winter conditions, it is often necessary to supplement livestock with hay and mineral supplements. Impacts to riparian areas with winter grazing are minimal, as livestock tend to stay out of cooler draw bottoms and concentrate grazing on warmer open slopes. Allotments within the Imnaha subbasin that have been identified as winter allotments where the majority of grazing occurs in winter/dormant season are as follows: Cow Creek, Dodson-Haas, Log Creek, Lone Pine, Rhodes Cr, and Toomey.

5. The Range staff for the Wallowa Mountains Zone decided that IIT monitoring efforts for 2002 Category I pastures would focus on this zone. Due to workload, winter allotments

[2] "Riparian Management Objectives" (RMOs) mean quantifiable mesures of stream and stream side conditions that define good anadromous fish habitat and serve as indicators against which attainment, or progress towards attainment, of the riparian goals will be measured (USDA and USDI 1995).

are not high on the priority list for greenline/end of season monitoring. Normally, livestock enter winter allotments in the fall and exit by late winter or very early spring. This allows vegetation a full season to grow and reach dormancy after livestock removal, allowing for adequate vegetation along the greenline and in the uplands alike. Other factors contributing to identifying priority pastures included: (1) Pastures with spawning habitat are not usually grazed during spawning periods; (2) where grazing occurs with steelhead spawning in larger streams such as the Imnaha River, Horse Creek *etc.*, high flows and cooler temperatures prevent livestock from going into streams and riparian areas during spawning periods; (3) these areas are unsafe or unfeasible to travel to after grazing season due to winter conditions and/or remoteness of the area; or (4) the riparian area has been identified as inaccessible to livestock (category 1A) or is so densely vegetated and steep that monitoring is impractical or unnecessary. Monitoring in the uplands on winter allotments occurs according to the Forest Plan utilization standards for dormant forage. Monitoring on these allotments classified as winter allotments is done on an 'as needed' basis driven by weather conditions and recommendations from range administrators and/or biologists.

Bear Gulch Cattle and Horse Allotment (NLAA)

In the Big Sheep watershed, the Bear Gulch allotment is 9,550 acres in size and is divided into five separate pastures that are managed under a deferred grazing rotation. The WWNF term grazing permit allows 124 cow/calf pairs and an addition 19 cow/calf pairs under a private land permit to graze from April 16 through November 10. Steelhead are present in streams running through three of the five pastures, utilizing a total of 8.52 miles of Bear Gulch and 0.56 miles of Devils Gulch creeks. The Lower Bear Gulch pasture in which there is 4.80 miles of steelhead habitat along Bear Gulch Creek is protected from livestock impacts by fencing, steep topography, and natural barriers. Livestock use this pasture from April 16 through May 15. The Deadhorse pasture contains 3.72 miles of Bear Gulch Creek. This pasture is grazed every other year for one month. Livestock are held on tops of the steep ridges in these pastures with salting, ample water sources, and the aid of a range rider. The third pasture containing steelhead habitat along Devils Gulch Creek is closed to grazing through an agreement with the Nature Conservancy. This pasture will remain closed to grazing through 2005, when consultation will be re-initiated.

All five of the pastures within this allotment met end of season (EOS) utilization standards in 1999 and 2000. Additional information collected by a WWNF fisheries biologist indicated that 50% of the three miles surveyed in Bear Gulch Creek was inaccessible to livestock due to steep topography and dense riparian vegetation. The substrate in the remaining portion of Bear Gulch Creek contained within the allotment contains cobbles that would not serve as suitable substrate for steelhead spawning. It was also noted that the fence in the Lower Gulch Pasture had effectively excluded livestock from riparian areas as there were no livestock tracks or manure inside of the fence line.

Big Sheep Cattle and Horse Allotment (NLAA)
The Big Sheep allotment is in the Big Sheep watershed and consists of a total of 20,762 acres of which 15,988 acres are suitable for grazing. This allotment is divided into four pastures and allows 350 cow/calf pairs to graze from April 16 until June 30 and 300 cow/calf pairs to graze between November 1 and December 31 through a term grazing permit. In addition, 100 cow/calf pairs graze under a term permit on private land during the same season. Management of the private land has been waived to the WWNF.

SR steelhead use 6.2 miles and SR chinook use 5.5 miles of the portion of Big Sheep Creek that runs through the Upper Sheep pasture. Fencing on the west side of the creek and the portion of the pasture on the east side of the creek is no longer grazed, thereby eliminating the likelihood of livestock negatively impacting the RHCAs along Big Sheep Creek. Livestock are also barred from entering the RHCA of Big Sheep Creek in both the Timber Creek and Whisky Riparian pastures with fences. Marr Creek, which flows through the Timber Creek pasture for a total of 1.8 miles is used by SR steelhead for spawning and rearing. The streambanks of Marr Creek are minimally impacted by livestock because they are heavily armored with large boulders, lined with dense riparian vegetation, and characterized by steep topography (>60% slope). Livestock are held on the ridgetops of the Timber Creek pasture with salting, ample water sources, and the aid of a range rider. EOS utilization standards were met in 2000 for the Lower/Middle Sheep pasture and the Upper Sheep and Breaks pasture. In 2002, both the Timber Creek and Whiskey Riparian Pastures met EOS utilization standards. All of the aforementioned pastures passed IIT standards for greenline monitoring.

Blackmore Cattle and Horse Allotment (NLAA)
The Blackmore allotment is in the Lower Imnaha watershed and is comprised of 1,778 acres, of which 823 are considered suitable for grazing. Neither of the creeks that run through this allotment, Turner or Blackmore Creek, provide habitat for listed fish.

Carrol Creek Cattle and Horse Allotment (NLAA)
In the Big Sheep watershed, the 2,342 acres comprising the Carrol Creek Allotment are divided into seven pastures. Managed with a term grazing on-off permit, 831 acres of the 2,342 acres are on non-waived private land. Therefore, the WWNF has no control over the management of the private land aside from determining the season of use. The WWNF manages the remainder of the Carrol Creek Allotment with a term grazing permit allowing 58 cow/calf pairs to graze from April 25 until May 10; 22 cow/calf pairs to graze from June 1 until July 31; and 51 cow/calf pairs to graze between November 1 and December 15. Spawning habitat for SR steelhead and SR chinook is present in two of the seven pastures: 0.42 miles in the North WWNF pasture and 0.38 miles in the South WWNF pasture. Livestock use in both pastures occurs outside of the time during which spawning occurs for listed fish species. The North Fork of Carrol Creek runs through the West Hillside Pasture and is also used for spawning and rearing by listed fish species. Access to the riparian areas of the North Fork of Carrol Creek is excluded through the

use of a temporary electric fence when livestock are present. All of the pastures within this allotment have met utilization standards for greenline monitoring. EOS utilization standards were met in 2001 for the North WWNF and South WWNF pastures.

Cayuse Cattle and Horse Allotment (NLAA)

The Cayuse Allotment is in the Lower Imnaha watershed and encompasses a total of 42,413 acres, of which 27,534 are deemed suitable for livestock use. The WWNF permits 348 cow/calf pairs to graze under a term grazing permit from April 16 until December 15. In addition, 52 cow/calf pairs are authorized to graze during this same time period on private land where the management of the land has been waived to the WWNF. The Cayuse allotment is managed using a combination of spring, summer, and fall deferred grazing system and is divided into seven pastures. The Basin pasture contains 1.24 miles of SR chinook salmon and 1.44 miles of SR steelhead habitat along the Imnaha River. The Pumpkin Creek, Cayuse Flat, Mormon Sleepy, and Horse Creek, pastures contain a total of 36.29 miles of SR steelhead habitat. Access to the riparian areas by livestock in all of these pastures is inaccessible due to the sheer cliffs and knife edged ridge tops lining the landscape. All of the pastures in this allotment have met or esceeded greenline monitoring utilization standards. In 2002, the Deer Creek and Mormon Sleepy pastures met EOS utilization standards. In 2003, the Basin Creek, Deer Creek, Cayuse Flat, Horse Creek, and Mormon Sleepy pastures also met EOS utilization standards.

Chalk Creek Cattle and Horse Allotment (NLAA)

The Chalk Creek allotment consists of 2,207 acres and is in the Upper Imnaha watershed. The allotment is managed under a deferred grazing system and incorporates both WWNF and private land that has been waived to the WWNF. No habitat for listed fish species occurs in any of the creeks within this allotment. All four of the pastures within this allotment have met IIT greenline monitoring standards. EOS utilization standards were met in the Campbell and Bob Creek pastures in 2000 as well as in the North Fork pasture in 2003.

College Creek Cattle and Horse Allotment (NLAA)

This allotment is in the Big Sheep watershed and is divided into two pastures totaling 669 acres in size. Managed under a term grazing permit, 30 cow/calf pairs are allowed to graze from April 16 and May 15 and November 1 until November 30. No habitat for ESA-listed fish species occurs within this allotment. No monitoring of EOS utilization standards have been conducted as the streams within the allotment are intermittent and do not sustain flows during the season of use.

Cow Creek Cattle and Horse Allotment (NLAA)

Cow Creek is classified as a winter allotment and managed on a deferred grazing system. Located in the Lower Imnaha watershed, the allotment consists of 7,363 acres, of which 4,870 acres are considered suitable for grazing. The term grazing permit under which the allotment is managed allows 231 cow/calf pairs to graze from November 1 until December 31 and from

February 1 until May 15. In addition, 38 cow/calf pairs are allowed to graze on private land from November 1 until December 31 and from March 1 until May 15. The private land has been waived to the WWNF under this permit.

A total of 5.11 miles of SR steelhead exists along Cow Creek in the Fingerboard, West Cow, and Deer Creek pastures. Past monitoring on this allotment has included photo trend monitoring (to be re-photographed in 2003-04) and utilization monitoring. Results of this monitoring have revealed that the riparian areas along Cow Creek in the aforementioned pastures to be well vegetated and minimally impacted by livestock. Additional monitoring on winter allotments is done on an as needed basis as determined by range administrators and fisheries biologists.

Divide Creek Cattle and Horse Allotment (NLAA)

In 1989, the Canal Fire consumed nearly 80% of this 16,717 acre allotment. Located in the Big Sheep Watershed, the Divide Creek Allotment was placed in non-use status following the fire until 1995 when the allotment was managed using a deferred rotation system. The permitee opted to take personal convenience non-use from 1996-1999. Since that time, the allotment has been in resource protection non-use status.

The WWNF has proposed to erect a permanent fence and electric fences to limit livestock access to the listed fish species habitat in Big Sheep, Little Sheep, Salt, Canal, and Ferguson creeks, all of which run through the allotment. A total of 8.82 miles of spawning and rearing habitat for SR steelhead is found in the aforementioned creeks. The proposed grazing schedule that would be executed under a term grazing permit in five pastures (including the Big Sheep Riparian pasture that would remain in non-use status through 2005) upon completion of the fences. Until the fences are built, grazing will not be permitted. EOS utilization and greenline standards were monitored and met in the Target Spring pasture in 2001.

Dodson-Haas Cattle and Horse Allotment (NLAA)

The Dodson-Haas allotment consists of 10,397 acres, of which 10,199 are considered suitable for grazing, and is divided into 23 pastures. The WWNF permits 507 cow/calf pairs to graze from November 1 until May 15. Under a private land term permit for which management is waived to the WWNF, an additional 181 cow/calf pairs graze during this same time period. Grazing occurs during the fall, winter, and spring with some pastures being grazed on the same schedule from year to year while others are rotated between spring and winter use. The time spent in each pasture and the rotation patterns are dictated by weather patterns, resource needs, and administration recommendations. A table outlining the grazing rotation system is found on page 149 of the BA.

Located in the Big Sheep watershed, the Imnaha River, Horse, Corral, and Dodson Fork Creeks flow through various pastures in this allotment. Two of the pastures, Thorn Creek and Corral Creek, are grazed from April 16 until May 15. The Imnaha River flows through both pastures

but the riparian areas are minimal due to the fact that the streambanks are lined by boulders, and flows during this time of year are too high for livestock to negotiate. A total of 1.54 miles of SR steelhead habitat is contained within the two pastures. Chinook use this portion of the Imnaha River as a migratory route but do not spawn this low in the system. An additional eight pastures are grazed by livestock up to April 15, the time at which SR steelhead spawn. However, the creeks containing SR steelhead habitat are minimally affected by livestock because, in addition to the high flows and bouldered streambanks that characterize the streams within this allotment, livestock are not allowed to extend their season of use in these pastures by two weeks. Instead, they are moved to higher elevations to allow for a full season's growth for the following year and to meet turn-out dates.

Upland utilization standard monitoring and riparian photo trend monitoring has been conducted throughout this allotment. Riparian photos have shown that the deeply incised tributaries threading through the allotment are heavily vegetated and contain large woody debris. Riparian areas are scheduled to be photographed again in 2003-04. Additional monitoring will be done on an as needed basis based on recommendations from range administrators and biologists.

Dunlap-Thorn Cattle and Horse Allotment (NLAA)

In the Upper Imnaha watershed, the Dunlap-Thorn allotment consists of 2,309 acres, 2,231 of which are deemed suitable for grazing. Grazing is managed under a term permit that allows 150 cow/calf pairs to graze from November 11 to December 20, and from May 1 until May 30. An additional 35 cow/calf pairs are allowed to graze on private land during these same time periods. Management of the private land is waived to the WWNF. There is no listed fish habitat within this allotment due to the fact that the tributaries to the Imnaha (Dunlap, Thorn, Jody, and Loyd Creeks) that run through portions of the allotment are intermittent and water is rarely found in the channels at any time during the year. Greenline standards and EOS utilization standards were met in all three of the pastures comprising this allotment in 2002.

Dunn Creek Cattle and Horse Allotment (NLAA)

The Dunn Creek allotment consists of one pasture approximately 319 acres in size. Located in the Big Sheep watershed, 32 cow/calf pairs are allowed to graze from November 1 until November 30 and from April 16 until May 15. Dunn Creek is the only body of water that flows through the allotment and does not sustain water at any point during either of the grazing seasons. EOS utilization standards were met in 2000 and 2002.

Grizzly Ridge Cattle and Horse Allotment (NLAA)

The Grizzly Ridge allotment consists of 3,802 acres in the Lower Imnaha River. No bodies of water run through the allotment and livestock are contained within the allotment by a fence that runs the length of the east side of the allotment and by steep topography that prohibits them from wandering towards the Imnaha River on the west side of the allotment.

Grouse Line Cattle and Horse Allotment (NLAA)

The Grouse Line allotment consists of six pastures in the Upper Imnaha watershed that are managed under a combination of rest-rotation and deferred rotation grazing systems. Under these systems cattle utilize pastures at varying times in the spring, winter and fall. Of the 13,815 acres comprising the allotment, approximately 13,017 have been deemed suitable for grazing. The term grazing permit authorizes: 130 cow/calf pairs to graze from April 15 until May 15; 151 cow/calf pairs to graze from May 16 until October 31; and 467 cow/calf pairs to graze from November 1 until November 30. In addition, 170, 63, and 524 cow/calf pairs are allowed to graze under a term permit waived to the WWNF on private land during the three aforementioned time periods.

Two of the pastures, Beeler and Jaynes Ridge, contain a total of 3.35 miles of SR steelhead habitat on Squaw (1.15 miles) and Grouse (2.2 miles) creeks. Livestock graze these pastures from May 16 until November 31. None of the pasture land along Grouse Creek in the Jaynes Ridge pasture has been waived to the WWNF. Consequently, the WWNF has no jurisdiction over the management of this land. Livestock are held in the upland areas in the Beeler pasture with salting and the aid of a range rider. Steep topography impedes livestock from leaving the uplands and entering riparian areas along Squaw Creek. EOS utilization standards were met in 2000 for the Johnson and Line/Park pastures and for the Grouse Creek and Morgan Top pastures in 2002. All four pastures met the greenline monitoring standard.

Horse Creek Cattle and Horse Allotment (NLAA)

The Horse Creek allotment is in the Lower Imnaha watershed and encompasses 8,243 acres, 5,143 of which are considered suitable for grazing. The allotment is divided into five pastures and managed under a term permit allowing 192 cow/calf pairs to graze from March 16 until June 15, and 234 pairs to graze from October 28 to November 31. The Imnaha River and Horse and Pumpkin Creeks run through several of the allotments. The Magpie pasture, which contains 2.4 miles of habitat for listed fish along the Imnaha River, is grazed during SR steelhead spawning season. Boulder-lined streambanks minimize livestock impacts and livestock are unable to navigate high flows, thereby keeping them from entering the river. Horse Creek flows through three pastures where grazing occurs during SR steelhead spawning season. Access to the creek in nearly impossible due to the steep topography, dense vegetation, and down wood found throughout the pastures. Were cattle to navigate these barriers, high flows would prevent them from entering the stream. Livestock are held on ridgetops through salting, ample upland developed water sources, and the aid of the a range rider. Photo point and range administrator records indicate that the riparian areas in this allotment are in exceptional condition.

Keeler Cattle and Horse Allotment (NLAA)

The Keeler allotment is in the Upper Imnaha watershed and is 310 acres in size. A total of four head of horses use the allotment from November 16 until April 30. Keeler Creek and Jody Creek run through the allotment. Keeler Creek is a perennial stream and Jody Creek and intermittent

stream. Neither creek contains fish habitat. Both greenline and EOS utilization standards were met for the two pastures in this allotment in 2002.

Log Creek Cattle and Horse Allotment (NLAA)
The Log Creek allotment is managed under a rotation system where pastures are grazed from early spring into the fall and winter months. The allotment is 10,321 acres in size, with 7,471 acres considered suitable for grazing. The WWNF permits 247 cow/calf pairs to graze at variable times between March 1 until January 31, for a total not to exceed 5.3 months. An additional 150 cow/calf pairs graze on private land during this same period. Management of the private land had been waived to the WWNF. Four out of the five pastures in this allotment are in the Lower Imnaha watershed. The remaining pasture and a portion of Indian Village pasture are in the Joseph Creek watershed and consequently will not be consulted on in this document.

Fence Creek runs through the East Fence pasture for 1.9 miles and serves as habitat for SR steelhead. This pasture is grazed during the time period in which SR steelhead are spawning. Steep terrain, a drift fence, and ample upland water sources keep livestock from straggling into riparian areas. The Imnaha River runs through 0.5 miles of the Packsaddle pasture. Access to the river is limited by steep terrain and fences lining adjacent private lands. High flow and boulder lined banks deter livestock from entering riparian areas.

Past monitoring on this allotment includes upland utilization monitoring and has met Forest Plan standards. In the future, additional monitoring may be implemented in riparian areas if recommended by range administrators and biologists or if it is required by IIT monitoring plan.

Lone Pine Cattle and Horse Allotment (NLAA)
The Lone Pine allotment is managed under a term permit and used by 300 cow/calf pairs and six head of horses and/or mules. Approximately 90% of the 10,839 acres comprising this allotment lie within the Snake River subwatershed and consequently will not be consulted on in this document. The remaining 10% is in the Big Canyon pasture in the Lower Imnaha watershed and is grazed from December 1 until April 15. The Imnaha River flows through this pasture but is inaccessible to livestock due to sheer cliffs. As is the case with all winter allotments, past monitoring has included photo trend monitoring with re-photographing scheduled to occur in 2003-04. Additional monitoring may be implemented in the future if recommended by range administrators and biologists or if it is required by IIT monitoring plan.

Marr Flat Cattle and Horse Allotment (LAA)
The Marr Flat allotment is in the Upper Imnaha watershed. Spanning a total of 85,740 acres, of which 41,506 acres are considered suitable for grazing, the Marr Flat allotment is managed under a term grazing permit and is divided into sixteen different pastures. Five different permitees run cattle on this allotment. These permitees are identified in the following table as follows: (M)

Marr Flat Cattle Company; (B) Bragg Investment; (G) Lyman Goucher; (W) Jo and Shari Warnock; and (W 1-3) Scott Williams.

Table 3. Livestock Type, Number and Season of Use in the Marr Flat Allotment

Livestock Type	Permitted Numbers	Season of Use
cow/calf pairs	100 (M) 120 (G) 85 (B) 125 (W) 691 (W 1-3)	7/1-10/31 5/16-10/31 5/16-10/31 5/16-10/31 5/16-10/31
horses or mules	4 head 6 head	6/1-10/31 6/1-10/15

Grazing management in this allotment is complex and it is not always possible to ensure that livestock conflicts do not occur with listed fish species or designated critical habitat. Despite the challenges of minimizing the likelihood that such conflicts will arise, the permitees try to minimize livestock impacts on riparian areas by developing and maintaining water sources, salting, and using range riders to keep cattle in the uplands. The following table, taken from pages 191-192 of the BA, summarizes pasture rotation and seasons of use in the Marr Flat Allotment.

Table 4. Summary of the Use of Each Pasture Within the Marr Flat Allotment

Pasture	Listed Fish Streams	Miles of Fish Habitat	Cow/calf Pairs	2002-2005 Season of Use
North Beef (01)	Squaw Creek	C=0 S=2.23	120 50 50 70 50 50 70	5/16-5/31 G 5/16-5/31 W-1 6/1-7/30 G 6/1-7/15 G 6/1-10/31 W-1 10/1-10-31 G
South Beef (02)	Squaw Creek	C=0 S.99	70 50	7/16-9/30 G 8/1-9/30 G
Rich Creek (03)	Rich Creek	C=0 S=6.1	85 85	5/16-6/15 W-2 10/16-10/31 W-2
Makin (04)	Rich Creek Makin Creek	C=0 S=2.0	487 487	6/31-6/30 W-2 9/16-10/15 W-2

Pasture	Listed Fish Streams	Miles of Fish Habitat	Cow/calf Pairs	2002-2005 Season of Use
Grouse Creek (05)	Grouse Creek Road Canyon Morgan Creek Makin Creek Rich Creek	C=0 S=9	125 154 85 125 85 154	5/16-6/15 W 5/16-6/15 W-3 5/16-6/15 B 10/16-10/31 W 10/16-10/31 B 10/16-10/31 W-3
Spoon Springs (06)	Marr Creek Morgan Creek	C=0 S=1.5	85 154 100 154 100	6/16-7/20 B 6/16-7/15 W-3 7/1-7/15 M 9/16-10/15 W-3 9/16-10/31 M
Big Sheep (07)	Big Sheep Creek Lick Creek	C=6.14 S=6.32	100 100 70	7/16-8/15 m 7/16-7/31 W-3 8/1-8/15 W-3
Basin (08)	Grouse Creek Morgan Creek	C=0 S=2.5	125 85	7/21-9/15 W 7/21-9/15 B
Miller Butte (09)	Tyee Creek Grouse Creek	C=0 S=16.36	87 54 400 100	7/1-9/15 W-2 7/16-9/15 W-3 8/16-9/15 W-2 8/16-9/15 W-3
Imnaha (10)	Morgan Creek North Fork Gumboot	C=3.8 S=4.0	70 150 182 55 125 100 122	5/26-6/15 W-2 5/26-6/15 W-2 5/26-6/15 W-2 10/16-10/31 W-2 10/16-10/31 W-2 10/16-10/31 W-2 10/16-10/31 W-2
Tyee (11)	Tyee Creek Gumboot Creek Grouse Creek	C=0 S=4.38	100	8/16-9/15 M
Blackhorse (12)	Gumboot Creek Skookum Creek	C=0 S=7.0	400	7/1-8/15 W-2
Holding Pasture (13)		C=0 S=0	125	10/6-10/15
Harl Butte (14)	Marr Creek	C=0 S=3.28	125 85 125	6/16-7/20 W 9/16-10/15 B 9/16-10/5 W
Lick Creek Riparian (15)	Big Sheep Creek Lick Creek	C=2.0 S=2.0	30	8/1-8/15 W-3

Pasture	Listed Fish Streams	Miles of Fish Habitat	Cow/calf Pairs	2002-2005 Season of Use
Imnaha Riparian (16)	Imnaha River Mahogany Creek	C=3.0 S=3.0	402	5/16-5/25 W-2

The following pastures are grazed outside of the spawning season for SR steelhead and the impacts to fish habitat are limited due to steep topography and boulder lined streambanks: (08), (09), (11), (12), and (14). The streams running through pastures (10) and (16) have well-armored banks and typically have high flows during the time periods when cattle are grazing. Big Sheep and Lick Creeks run through (15). Though 30 head of cattle are only in this pasture from August 1-15, utilization standards are carefully monitored by range administrators and the permitee. There are no perennial streams in (13), nor has fish presence been documented in the intermittent tributaries.

All of the pastures met greenline monitoring standards on fish-bearing streams with the exception of North Beef, Main, and Spoon Spring pastures in 2001, when key areas were mistakenly located along streams that did not contain fish habitat. In 2002, these errors were remedied by relocating key areas. EOS utilization standards were met in pastures in the following allotments:

1. **1999:** 04, 06, 01, 021, 06, 07, 09, 10, 11, and 12
2. **2000:** 01, 04, 09, 10, 12, and 14
3. **2001:** 01, 04, 06, 09, 10, 12, and 14
4. **2002:** 01, 02, 03, 04, 06, 07, and 11

Middle Point Cattle and Horse Allotment (NLAA)

The Middle Point Allotment is in the Big Sheep watershed and is comprised of 5,280 acres, of which 3,583 are in suitable condition for grazing. This allotment is divided into nine pastures and managed under a spring/fall rotation system under a term grazing permit. Under the term grazing permit, 132 cow/calf pairs are allowed to graze from April 16 to May 31, and 16 cow/calf pairs allowed to graze from November 16 until November 30. A private land permit for which management has been waved to the WWNF allows 118 cow/calf pairs to graze from April 16 until May 31. The grazing schedule for this allotment has remained the same for the last several years.

There is a total of 2.12 miles of habitat along the Imnaha River for both SR steelhead and SR chinook salmon in two of the pastures; West 1 and West 2. These pastures are grazed from April 16 until May 31, but access to the river by livestock is limited by sheer cliffs, rim rocks, and a series of drift fences. Though there are two or three trails that have shown limited use by livestock leading to the Imnaha River in these pastures, high flows prohibit the animals from

entering the stream course. Livestock is held on the upper benches through salting, the aid of a range rider, and upland water sources.

Two of the pastures contain a total of two miles of SR steelhead habitat along Big Sheep Creek and are grazed during the same time period as the West 1 and 2 pastures. Access to Big Sheep Creek is nearly impossible due to the sheer cliffs that characterize not only these pastures, but the entire allotment. Flows during the spring are extremely high and the streambanks are well armored by large cobble and substrate. The remaining pastures are adjacent to private land that is fenced negating the likelihood that livestock will stray outside of the allotment.

Mink Cattle and Horse Allotment (NLAA)

The Mink Allotment is grazed lightly from June 1 until August 30 by 25 cow/calf pairs. In addition, 25 cow/calf pairs are allowed to graze under a term permit on private land where the management has been waived to the WWNF. The Mink Allotment consists of 644 acres, of which 304 are considered suitable for grazing. There is only one pasture within this allotment and no perennial streams or fish habitat exists within the allotment.

Needham Butte Cattle and Horse Allotment (NLAA)

The Needham Butte Allotment is divided into two pastures that are grazed by 35 cow/calf pairs from May 1 until October 30. Located in the Big Sheep watershed, this allotment consists of 1,634 acres, of which 1,054 are deemed suitable for grazing. Management of all private lands in this allotment have been waived to the WWNF. One of the two pastures, the Breaks pastures, contains 0.74 miles of SR steelhead habitat along Marr Creek and is grazed during steelhead spawning season. Access to Marr Creek and the adjacent riparian areas are nearly inaccessible due to dense vegetation and steep topography. The streambanks themselves are lined with large cobbles and boulders. Livestock effects to the Marr Creek are negligible due to the high gradient and streambanks composed mostly of boulders. No steelhead spawning habitat is present in the portion of Marr Creek on this allotment.

Though the Pasture Breaks allotment was monitored for both greenline measurements and EOS utilization standards in 2002, no official measurements were taken due to the ample amount of exceptionally dense riparian vegetation. Photographs were taken and observations recorded by range personnel attesting to the fact that the riparian areas consisted of boulders and bedrock and showed no signs of livestock impact.

Rhodes Creek Cattle and Horse Allotment (NLAA)

The WWNF permits 784 cow/calf pairs to graze from November 1 until May 15 on this 28,634 acre allotment, 20,932 of the acres are suitable for grazing. An additional 101 cow/calf pairs and 15 head of horses/mules are allowed to graze during this same time period. The allotment is in the Lower Imnaha watershed and managed under a term grazing permit that incorporates waived private land.

The Rhodes Creek allotment is divided into 16 pastures, several of which contain significant drainages that serve as spawning rearing habitat for listed fish species. The Cow, Lightening, Rhodes, Deep, and Sleeping Creeks all provide spawning and rearing habitat for SR steelhead. Total miles of fish habitat in the aforementioned streams is as follows: (1) 1.5 miles of SR steelhead in Cow Creek is found in the Holmes and Foster pastures; (2) one mile of SR chinook salmon and 10.3 miles of SR steelhead habitat along Lightning Creek is found throughout the Lightening Creek, Lightening Hangover, Bull, Eastbench and Westbench Lightening pastures; (3) 0.5 miles of SR chinook salmon and 4.47 miles of SR steelhead habitat on Rhodes Creek is found in Eastbench Lightening and Rhodes Creek pastures; (4) 0.5 miles of SR steelhead habitat along Deep Creek is in the Westside Cow pasture; and (5) 1.3 miles of SR steelhead habitat on Sleepy Creek runs through the Sleepy Breaks pasture. In addition, the Imnaha runs through three separate pastures where a total of 2.25 miles is used by SR chinook salmon and 6.07 miles is used by SR steelhead for spawning, rearing, and migration. All of the aforementioned streams are lined with dense riparian vegetation and piles of large woody debris. The topography is steep with cliffs falling away to incised channels lined with large substrate.

This allotment is classified as a winter allotment and past monitoring has included upland utilization and riparian photo trend monitoring. Riparian areas are scheduled to be re-photographed in 2003-04. Additional monitoring may be implemented in the future if recommended by range administrators and biologists or if it is required by IIT monitoring plan.

Saddle Creek Cattle and Horse Allotment (NLAA)

Three of the seven pastures and a portion of a fourth contained within the Saddle Creek allotment are in the Imanaha subbasin. The remaining pastures are in the Snake River basin and will be consulted on at a later in a document addressing projects in that geography. The Saddle Creek allotment is 18,202 acres in size and in the Upper Imnaha watershed. Approximately 8,485 acres of the allotment are suitable for grazing. The WWNF authorized 100 cow/calf pairs to graze under a term permit from May 16 until October 31 using a deferred rotation, two-year grazing cycle. Two of the pastures within the Imnaha subbasin contain a total of 4.63 miles of habitat along Freezeout Creek used by SR steelhead for spawning and rearing. Impacts to these riparian areas are insignificant due to the fact that the dense vegetation, large woody debris, and steep material make accessing Freezeout Creek difficult for livestock. In 2002, five of the seven pastures were monitored for and met IIT greenline and EOS standards.

Schleur Cattle and Horse Allotment (NLAA)

Located in the Upper Imnaha watershed, the Schleur allotment consists of 2,851 acres. The WWNF authorizes 100 cow/calf pairs to graze between April 15 and May 15, and from November 1 until November 30 under a term grazing permit. An additional 20 cow/calf pairs graze on non-waived private land during the same two time periods. Though the pastures in this allotment run along the Imnaha River, access to riparian areas is barred to livestock by fences that have been constructed on private land. The side drainages that flow through the pastures

(Spring Creek, Schleur Creek, Adams Creek, Grave Creek, and College Creek) are not used by listed fish species within the allotments. Greenline and EOS utilization standards were met in 2000 in the Adams pasture, and again in 2002 in the Spring Creek, Schleur Creek, Adam Creek, and College Creek pastures.

Snell Cattle and Horse Allotment (NLAA)

The Snell allotment is in the Upper Imnaha watershed and is divided into two pastures. The allotment is approximately 1,317 acres in size, and 570 acres are considerable suitable for grazing. The WWNF permits 100 cow/calf pairs to graze under a term permit from April 16 until May 15, and from November 11 until November 30. The allotment is divided into two pastures and there is no fish habitat in either of them. Both pastures were surveyed in 2002 and met both greenline and EOS utilization standards.

Toomey Cattle and Horse Allotment (NLAA)

The Toomey allotment is in the Lower Imnaha watershed and is approximately 5,538 acres in size. The WWNF authorized 184 cow/calf pairs to graze from November 1 until December 31, and from February 1 until May 15. An additional 52 cow/calf pairs graze on waived private land during this same period. There is no fish habitat in any of the eight pastures within this allotment. Due to a lack of riparian and fish habitat, monitoring for this winter allotment has been a low priority. Additional monitoring may be implemented in the future if recommended by range administrators and biologists or if it is required by IIT monitoring plan.

Administrative Horse Pastures (NLAA)

The following pastures are used by WWNF personnel to graze horses and/or mules. The following table lists each of the allotments and their proximity to listed fish species and their designated critical habitat.

Table 5. A Summary of Administrative Pastures and Their Proximity to Listed Fish Habitat

Pasture Name	Listed Fish Streams	Miles of Habitat	Numbers Permitted	Season of Use
College Creek	Imnaha River	C*=0.1 S*=0.1	5-20 head	5/1-11/30 as needed
Thorn Creek	none	N/A	5-20 head	as needed
Lick Creek	none	N/A	4-10 head	7/16-11/15 4 days a month summer and fall
Memaloose	Lightening Creek	C=0 S=0.5	5-20 head	6/1-10/31 summer and fall up to 120 days
Lord Flat	none	N/A	5-20 head	6/1-10/31 summer and fall up to 150 days

*C=SR Chinook salmon *S=SR steelhead

1.2.3 Recreation Activities

Developed Recreation Use (NLAA)

As described and mandated in the Forest and Hells Canyon Comprehensive Management Plan, the WWNF is responsible for maintaining recreation sites in a manner which protects natural resources while providing safe facilities for overnight camping and hiking. There are seven campsites and two trailheads within the Imnaha subbasin that facilitate this type of outdoor recreation and consequently must be maintained by the WWNF. Routine maintenance includes the following types of activities:

- Removal of hazard trees
- Clean up of restrooms, tables, and fire rings
- Picking up trash
- Updating information boards
- Providing education through public contact
- General facility maintenance such as painting and repairing of facilities

Trees that pose a risk to the public by threatening to fall into campsites or across trails are labeled "hazard trees", and are subject to removal. Upon removal, trees are felled towards existing roads. If the tree is within the RHCA of a system meeting the matrix parameter for large woody debris (LWD) recruitment and can be reached by existing roads or campsites, the felled tree may

be removed with a self-loading logging truck. In the event that LWD recruitment levels are not functioning appropriately in the subwatershed, the felled trees that can be reached from hardened sites will be placed within the bankfull width of the stream outside of the designated recreation area. It is rare that felled trees would have to be relocated in this way. This is because most developed sites are placed near streams with high quality riparian habitat. If hazard trees are felled in areas not accessible via existing roadways or other hardened areas, they would be left on site. All limbing and topping of trees would be done by hand.

The following protection measures, taken from page 270 of the BA will be implemented to minimize the impact of maintaining developed campsites and trailheads on listed fish species and their designated critical habitat:

- Campsites that are nearest to the river or lend to greatest actual or potential resource damage have been identified. Most fire rings and picnic tables have been moved at least 100 feet from the streambanks and have been permanently anchored to prevent visitors from returning the tables to streamside locations. Additional efforts in moving fire rings and tables away from the stream's edge will continue in the future.

- Native riparian vegetation, particularly coniferous and deciduous trees and shrubs, have been and will continue to be planted near the Imnaha River and Lick Creek Campgrounds to stabilize soils, discourage foot traffic along fragile slopes, and to re-establish vegetation on streambanks.

- Public education concerning chinook salmon, steelhead and bull trout complements these closures and has increased since the fish were listed. Signboards at all campgrounds provide information concerning the Imnaha River fishery and the wise use of related resources. Campground hosts and Forest Service recreation technicians are provided with additional information specifically related to steelhead, and chinook life histories and protection of these species.

- User created trails within campgrounds that are not needed or are potential sediment sources are closed by placement of rock and debris barriers and hand planting of native vegetation.

<u>Dispersed Recreation Use (NLAA)</u>
Unlike developed sites, dispersed recreation sites have no facilities other then user developed fire rings and primitive pit toilets. Site location is based on user preference with use occurring primarily during the months of October and November. Dispersed sites are primarily used by hunters and are along the west bank of the Imnaha River. Vehicles are able to access these sites from WWNF road 3960.

Outfitter and Guide Permits (NLAA)

Outfitter and guide permits authorize approximately 2,000 days of use within the Imnaha subbasin. It is estimated that approximately 54% of allocated use days are taken annually which totals less then 5% of the total visitor use in the subbasin. Consequently, there are minimal effects, especially to riparian areas, that can be attributed to outfitters and guides. Outfitters and guides traditionally use the same trails every year and occupy existing dispersed camp sites. In some instances permit holders may opt to reserve campsites. On average, there are from 5 to 15 such requests per season. The only time when outfitters and guides are assigned specific areas in the forest is during hunting season. Hunting camps are near or in the Eagle Cap Wilderness and are subject to all wilderness regulations. In addition, low-impact and stock management techniques (WWNF2700 Manual: Special Uses) must be followed to minimize human and livestock damage.

Camps are placed as far from streams as possible, and are typically on ridge tops. Camp sizes range anywhere from one tenth of an acre to five acres in size. All camps are inspected annually by WWNF personnel. Routine maintenance of these sites occurs every ten days during seasons of use. Maintenance activities include picking up trash and hay, dismantling temporary structures built by users, and covering overused areas with fallen tree limbs and rocks to protect these areas from additional use in the future.

Table 6. Summary of Permits Issued Within the Imnaha Subbasin

Permit Type	Number of Permits	Use Days
horse and mule outfitters	10	data unavailable
cross country skiing	2	1600
bus tour	1	236
mountain bike tour	1	45
aircraft outfitter	1	150

Trail Use and Maintenance (NLAA)

To provide safe recreation opportunities for hikers and livestock users, 259 miles of trails within the Imnaha subbasin are maintained annually. Trail maintenance includes removal of brush, logs, and loose rocks; repairing fords and waterbars; relocating short, user-developed trails; and repairing and maintaining bridges associated with designated trails. Maintenance typically occurs between April and December, and is accomplished with hand tools and motorized equipment by trail crews, contractors, and volunteers.

Of the 259 miles of trails in the Imnaha subbasin, 56 miles are within 300 feet of perennial fish-bearing streams, 12 miles are within 150 feet of perennial non-fish-bearing streams, and 53 miles are within 100 feet of intermittent stream channels. Trails cross streams by means of a ford at 38 places within SR steelhead spawning and rearing habitat and at five places within areas used by SR spring/summer chinook salmon for spawning and rearing. Trail use occurs primarily in the spring and fall at lower elevations, and in the summer and early fall at higher elevations. All of the aforementioned trails are used primarily by backpackers and stock users (horses, mules, llamas, and goats).

Imnaha River Trail Rock Slide Removal (NLAA)

The Lower Imnaha Trail which runs within the RHCA along the Imnaha River in the Lower Imnaha watershed, is adjacent to a sheer rock face prone to rock slides. The Lower Imnaha trail is used year-round by visitors on foot, horseback, and mountain bikes. A recent rock slide blocked a portion of the trail and is a hazard for trail users who attempt to scale around the rock pile. Consequently, the WWNF is proposing to remove the rocks. No mechanical equipment will be used during removal with the exception of a rock drill. The rock drill will be used solely to place charges that would pulverize the rocks to a manageable size. The blast will also serve to dislodge rocks that are currently perched precariously on the hillside adjacent to the trail. Once the blasting has been completed, the rocks will be removed by hand.

Toilet Replacements (NLAA)

Fourteen toilets at twelve developed camp sites are no longer functioning. All of the toilets were installed in the 1950's, and no longer meet state and Federal requirements. Before replacing a toilet, site specific field inspections must be performed and a permit obtained from the Department of Environmental Quality (DEQ).

Toilet installation involves pumping and removing the existing structures and, if the existing hole will not be used as a part of the new toilet, it will be filled with soil and rock. The disposal of all materials and the attainment of soil and rock materials used to fill abandoned toilet pits will occur off site. The new hole is then excavated at the DEQ approved location and sized to fit a 1000 gallon cement vault. The vault is sealed and lowered into place and construction on the toilet building completed. Protection measures to avoid take or adverse effects are found on page 274 of the BA that apply to these toilet replacement proposals are as follows:

- Place new toilets only at Oregon DEQ-approved sites that comply with PACFISH.
- Locate replacement toilets far as possible from the riparian area (if possible across the access road from streams) while still achieving recreational site objectives.
- Plant vegetation for screening and erosion control.
- Keep all equipment on hardened surfaces and operate only on dry soil conditions.
- A fisheries biologist or hydrologist will be consulted before construction begins and will visit the construction site as needed.

- Use appropriate erosion control methods and materials to limit instream sedimentation, such as weed-free straw bales or erosion control fencing.
- Any vegetation removal will not retard the attainment of RMOs.

Campground Water System Replacement (NLAA)

The WWNF is proposing to replace the existing gravity spring systems that supply water in the Blackhorse, Hidden, Coverdale, and Lick Creek campgrounds with wells and hand pumps. Maintaining gravity spring systems is costly and it is often difficult to meet DEQ standards for drinking water. Removal of the existing water systems will entail removing the pipelines. A well will then be drilled and capped and hand pumps and drains installed. Types of equiptment used during well construction may include a well drilling rig, backhoe, and hand tools. Areas disturbed by construction activities will be smoothed and seeded or planted with native vegetation. The gravity spring systems will be replaced as funding allows.

Indian Crossing Campground Improvement (NLAA)

The Indian Crossing Campground is along the Imnaha River at RM 58. The campground facilities are currently deteriorating. In an attempt to upgrade the campground and make it a facility that would be safe and accessible to users, camping units will be clearly defined with separate areas maintained for overnight use and day use. Overnight campsites will be a minimum of 100 feet from the Imnaha River. Facilities will be upgraded to be barrier-free. Traffic control will be implemented by strategically planting native vegetation and improving signage.

The following protection measures, taken from page 277 of the BA, apply to the campground water system, rehabilitation, and improvement projects:

- Locate new sites as far as possible from the riparian area while still achieving recreational site objectives.
- Plant native vegetation for screening and resource protection and seed all disturbed areas with native seed appropriate for the site.
- Keep all equipment on hardened surfaces and operate only on dry soil conditions.
- A fisheries biologist or hydrologist will be consulted before construction begins and will visit the construction site as needed.
- Use appropriate erosion control methods such as weed-free straw bales during well drilling operations, removal of old buried pipelines, and any other ground disturbing activity to prevent instream sedimentation.
- Locate wells as far as possible from the riparian areas (and across the access road from streams) while still achieving recreational site objectives.

Lick Creek Trail Bridge Replacement (NLAA)
The Lick Creek Bridge is on Lick Creek in T4S,R46E, section 35. The existing bridge is comprised of degraded, non-treated wood stringers. These stringers will be lifted off the existing abutments and replaced with stringers salvaged from a previous road bridge and covered with bridge decking. The existing abutments will be left in place but will not be re-used. New abutments will be placed on the road leading up to the bridge away from the edge of the stream. Fill material obtained from an off-site location will be used to create smooth approaches to the bridge. No instream work will be done as a part of this project and no riparian vegetation will be disturbed as all work will be done from the existing road. Construction activities will however be done during the inwater work window to eliminate the possibility of effecting listed fish.

Big Sheep Trail Bridge Replacement (NLAA)
The existing Big Sheep Trail Bridge is a dilapidated wooden structure that crosses Big Seep Creek at RM 34. The replacement bridge would be a railed, eight-foot-wide bridge designed for snowmobile use. Once the decking from the existing bridge is removed, the new bridge would be placed on the existing sills. There is no treated wood in the existing bridge which eliminates concerns for contaminating the stream course with treated wood residue. No excavation would be required at any point during construction, and equipment would not cross or enter the stream at any time. All work would be done from the road leading to the bridge.

The following protection measures found on page 278 of the BA apply to the Lick Creek and Big Sheep Creek Trail Bridges Replacement Projects:

- Operate machinery only under dry conditions. Dry conditions are defined as periods when a handful of soil squeezes into a loose ball that falls apart rapidly when the hand of soil is tapped from behind with the other hand.
- A fisheries/hydrologist will be consulted during bridge replacement.
- Areas disturbed by project implementation will be seeded and planted with native vegetation where necessary.
- Use appropriate erosion control materials/methods to limit instream sediment input, wherever necessary.
- Oil absorbent clean-up materials would be present on-site when any piece of heavy machinery is working next to a stream.
- There will be no fueling or storage of fuel or oil within RHCAs.
- Although no instream work will be done, trail bridge replacements will be done during the ODFW instream work window to reduce potential of sediment reaching the water column.

Crazyman Trailhead Relocation and Land Exchange (NLAA)
Recreationalists seeking to use the Crazyman Trail park along the shoulder of WWNF road 3955 and cross private property to reach National Forest land where the trail begins. The Crazyman

Trail runs along the Imnaha River in T3S,R48E, section 8. Parking along WWNF road 3955 creates hazardous situations for trail users. To create a safe parking location and convenient access to the Crazyman Trail, the WWNF is proposing to abandon the former trailhead and relocate the new trail and rights of way approximately 0.5 miles south of the existing trailhead.

A private land owner has agreed to grant the WWNF a right of way on an acre of property adjacent to Road 3955 that leads to the Crazyman Trail. The land owner has conceded to let the WWNF level and gravel a portion of the property that would serve as a parking area and connect to the trailhead. A road approximately 60 feet long would be constructed and lead from road 3955 to a designated parking area. The parking area would be slightly sloped for drainage and native vegetation planted. Vegetation will be planted along the sides and around the perimeter of the parking area to minimize possible sediment movement. All areas disturbed by actions associated with the project will be seeded with native, weed-free seed. The parking area would be 350 to 400 feet from the west bank of the Imnaha River and approximately 75 feet south of an intermittent stream.

A new segment of trail measuring 0.75 miles in length will be built to connect the new trailhead with the existing trail. The new portion of the trail will run through a piece of private land for which the land owner has granted a WWNF right of way and cross a slope along the Imnaha River where it will continue across a natural ford and connect with the existing trail. The ford crosses a section of the river characterized by large cobble and small boulder substrate with no spawning gravels. On the east side of the ford, the trail will continue along a slope leading to a bench. The construction of the new trail that will occur within the RHCA will be done with hand tools. Drainage structures will be installed to prevent sediment from reaching the stream course.
Rather then obtaining procuring easements for the sections of privately owned land that lead up to and cross the bench, the WWNF has negotiated a land use exchange with the owner of the affected private land. The following table, taken from page 299 of the BA summarizes the ten parcels of land that will be exchanged.

Table 7. Land Exchange Parcels Associated with the Crazyman Trailhead Relocation

Parcel	Offered WWNF Acres	Acres Acquired by the WWNF	River Front Offered by the WWNF (lineal feet)	River Frontage Acquired by the WWNF (lineal feet)
1	0	0.28	0	0
2	0.69	0	0	0
3	0.94	0	0	0
4	2.17	0	0	0

5	0.08	0	0	0
6	1.64	0	600	0
7	0	0.21	0	185
8	0.06	0	105	0
9	0	8.62	0	2295
10	0.45	0	295	0
Total	6.03	9.11	1000	2480

1.2.4 Transportation Activities

Cow Creek Bridge Replacement (NLAA)

The Cow Creek Bridge is in the Lower Cow Creek subwatershed at T4N, R49E, Section 6. The bridge is used to access a National Park Site, the Snake River, an administrative and permitee site, and the Dug Bar Road #4260 for routine maintenance. Due to the deteriorated state of the bridge decking, the load limit on the Cow Creek Bridge is 10 tons.

Activities associated with this project include replacing the existing bridge decking with a standard, glue-laminated timber structure that would be placed on the existing abutments and placing 25 cubic yards of crushed rock on the approached to the bridge. The gravel would serve to reduce the potential for sediment input to the creek and would cover approximately 100 feet of the roadway on either side of the bridge. Construction will take approximately two days. Traffic will be re-routed from the road leading to and from the bridge for the duration of construction, thereby negating the need to construct an alternate by-pass route. No instream work will be done as a part of this project and all machinery will operate from the existing road prism. There is no treated wood in the existing bridge structure and holes drilled in the treated stringers for bolting them to the existing abutments will be treated with copper naphthenate per the American Wood Preservers Association field treatment specifications. These specifications require that no preservatives be allowed to enter either the soil or aquatic environment.

The proposed project area encompasses less then 150 feet of Cow Creek. Cow Creek is used for spawning and rearing by SR steelhead and serves as rearing habitat for SR spring/summer chinook salmon. Though no instream work will be done as a part of this project, construction activities will be conducted during the ODFW approved in-water work window to ensure that listed fish species and their designated critical habitat are not negatively affected.

Neiman Bridge Removal (LAA)

The Neiman Bridge is on the Imnaha River, directly downstream from Blackhorse Campground along WWNF road #3955-020 (T4S, R48E, Section 30). Historically, the Neiman Bridge has been used to access power lines that run along the east side of the Imnaha River. The bridge has eroded to the point where it is no longer functional or safe. The WWNF is proposing to remove the Neiman Bridge rather then upgrading it to meet safety standards.

An excavator will be used to remove the bridge and its abutments. Instream work will be required for this portion of the project. In addition, two culverts on intermittent, non-fish-bearing streams along road #39955-020 will be removed and 1.7 miles of road #3955-020 leading up to Neiman Bridge will be decommissioned and seeded, thereby lowering the overall road density in the proposed project area. Culvert removal will entail uncovering the culverts with an excavator or a backhoe, removing the culverts, pulling back the affected banks, and seeding disturbed areas with native seed. Culverts will be disposed of off site.

Lick Creek Bridge Replacement (LAA)

Originally constructed in 1952, the Lick Creek Bridge is on WWNF road 39 (T5S, R46E, S1) and is in need of repair. The existing bridge is comprised of treated lumber and is constricting the creek channel. The bridge abutments are narrower then the bankfull channel and causes Lick Creek to swirl into eddies that deposit sediment and cause the channel to widen directly upstream of the abutments.

The new bridge will be constructed in the same location as the existing bridge but will span the bankfull width of Lick Creek. Vehicle approach rails will be incorporated into the structure of the new bridge and the road approaching the bridge will be graded to match the profile of the road. The existing abutments will be removed and new concrete abutments will be poured beyond the bankfull width. Abutment removal will entail the use of mechanical equipment. A minimal amount of instream work will be necessary as a part of construction. Cofferdams, sandbags, or waterbladders will be used to minimize the amount of sediment that enters the stream course. Flows in Lick Creek will remain uninterrupted throughout construction ensuring that fish passage will be provided at all times.

A temporary, one lane bypass downstream of the proposed action area will be constructed and remain in place throughout the duration of the construction period. The bypass will be constructed on an existing gravel route on the east side of the creek and connected to a single-lane temporary bridge. Geotextile fabric topped with clean gravel which will be obtained off site will run along the west side of Lick Creek for approximately 150 feet before it connects with the existing road. Once construction is completed, all structures associated with the temporary crossing will be removed and disturbed areas planted with native seed.

As a part of this project, the approach to the Lick Creek Campground will also be reconstructed. The existing unsafe, Y-shaped approach will be replaced with a single lane road. An undersized drainage culvert adjacent to the Lick Creek Campground will also be replaced. Lick Creek serves as spawning and rearing habitat for SR steelhead and SR spring/summer chinook. All work will be done during the ODFW designated in-water work window.

Big Sheep Creek Bridge Abutment Repair (LAA)

The Big Sheep Creek Bridge is at RM 25 on WWNF road 3900-140 (T4S, R46E, Section 23) in Big Sheep Creek. Originally constructed in the 1960's, Big Sheep Bridge is a two lane, concrete structure. The fill material surrounding the abutments is actively eroding and serves as a significant source of sediment input to the creek. To correct this problem, mechanized equipment such as a backhoe or an excavator, will be used to remove excess material that has accumulated beneath the bridge. Material that is retrieved will be deposited off-site. The remaining fill material around the abutments will be laid back to an angle of natural repose. Riprap will then be placed along the lower bank just below the high water line to buffer against future erosion issues that may occur. The upper portions of the bank will be covered in jute matting and planted with shade-tolerent, native shrubs to further reduce the risk of erosion.

Once construction is completed, Big Sheep Bridge will be closed to full-sized vehicle travel and will be used solely as a trail. All-terrain vehicles (ATVs) will still be able to use the bridge. The portion of road 3900-140 to the north of the bridge will be converted from a road to a trail. Please refer to the project descriptions for the roads to trails projects for further detail.

Bear Gulch Bridge Superstructure Repair (NLAA)

The Bear Gulch bridge crosses Little Sheep Creek at the mouth of Bear Gulch, adjacent to highway 350 on Road 3520 in the Bear Gulch. This bridge is on a WWNF right of way but is not actually on WWNF land. The entire superstructure of the bridge with the exception of the abutments will be removed and replaced. To ensure that debris does not fall into the stream course, a tarp will be installed under the bridge. The deck of the bridge will be swept and vacuumed before removal as will the bearing seat and sill both before and after the timber is removed. The existing anchor bolts will be cut off flush with the top of the concrete bearing seat and all four of the pedestal caps (one at each end of the abutment walls) will be sawed off the seat. Material that is collected during sweeping and vacuuming will be collected and disposed of off-site.

The new decking will be comprised of glue-laminated timbers. Holes drilled in the timber decking to attach it to the existing abutments will be treated with copper naphthenate as per the American Wood Preservers Association field treatment specifications. According to these specifications, no preservatives will be allowed to enter the soil or aquatic environment. Holes will also need to be drilled into the concrete bearing seat to place and grout the new, longer

anchor bolts. The contractor will be required to ensure that the amount of grout or dust that is allowed to enter the stream is kept to an absolute minimum.

No equipment will operate in the stream. Workers may at times need to stand in the stream. Removal of the existing stringers and decking will be done with heavy machinery such as an excavator. All heavy machinery will operate from the existing road prism. Materials may be stored for several days on site and the components of the existing structure will become the property of the contractor. It is then up to the contractor to either dispose of or re-use these materials within State laws and regulations. The road leading to the bridge will be closed to all traffic for the duration of construction. Passage across the creek will be provided to the land owners whose dwelling is on the opposite side of the bridge by way of a laminated beam that will be laid across the creek. Bridge removal and construction is expected to take less then three weeks. All work will be done within the ODFW-designated in-water work window.

Minor Culvert Replacements (NLAA)

The WWNF has completed an inventory of all the existing culverts within their jurisdiction on the Wallowa Mountain Zone to confirm that they are providing fish passage for all life stages and are able to pass 100-year flow events. It was discovered that a large number of culverts are failing to one or both of these things and consequently need to be replaced. The list of culverts in need of replacement have been divided into two categories based on their proximity to occupied fish habitat and the complexity of the actions associated with their removal and replacement. Those culverts that are situated in intermittent, non-fish-bearing channels, do not require concrete footings or the diversion of the channel, do not require traffic diversions to be constructed, and are a minimum of 300 feet from any fish bearing stream are deemed to be minor replacements. Old culverts will be uncovered and removed using either an excavator or backhoe that will operate from the existing road prism. Machine crossing of streams will be minimized and avoided when ever possible. Machinery will only operate under dry conditions. Dry conditions are defined as periods when a handful of soil squeezes into a loose ball falls apart rapidly when the hand of soil is tapped from behind with the other hand. Pollution control materials will be on hand wherever heavy machinery is used next to a stream channel.

Once the old culvert has been removed, the new culvert capable of passing a 100-year flow event will be set in place and covered with fill material. The fill material will be compacted and the road surface replaced over the new culvert. All work will be done in the dry, and fisheries or hydrology personnel will be notified before culvert replacement. Once replacement is completed, all disturbed areas will be seeded with native plants.

The following minor culvert replacements have been identified and are displayed in the following table taken from page 314 of the BA.

Table 8. Minor Culvert Replacement Location and Existing Size

Stream	Road	Existing Size (inches)*
Shadow Canyon	3935405	36 cmp
Shadow Canyon	3935400	36 cmp
Cabin Creek Tributary	3920130	measurement unavailable
North Fork Dry Creek	3962035	36 cmp
North Fork Dry Creek	3962000	24 cmp

*cmp is defined as corrugated metal pipe

Major Culvert Replacements (LAA)

As opposed to the minor culvert replacements described above, major culvert replacements will require instream work within flowing streams. Instream work may include removing the existing culvert, diverting flows through a pipe or small channel, pouring concrete footings, and the installation of a new pipe or bottomless arch. All of the replacement culverts will be sized to pass 100-year flood events as well as provide passage for all life stages of fish. Culvert replacement will be done as funding becomes available with those identified as being "high priority" replaced first. Information regarding the individual culverts to be replaced during individual years will be brought forward to theWWNF Level I team annually. All of the culverts listed in Table 2 fall within designated critical habitat for SR spring/summer chinook salmon and/or SR fall chinook salmon.

Table 9. Major Culvert Replacement Location and Existing Size

Stream	Road	Existing Size (inches)**
McCully Creek *	3920000	96 cmp
Summit Creek	3965160	24 cmp
Ferguson Creek *	3920000	36 cmp
Ferguson Creek *	3920000	36 cmp
Ferguson Creek	3020055	cmp
Canal Creek	3920000	48 cmp
Canal Creek *	3920110	24 cmp
Canal Creek *	3920120	24 cmp

Stream	Road	Existing Size (inches)**
Little Sheep Creek *	3900020	74 cmp
Little Sheep Creek *	3920000	60 x 72 (2) pac
Little Sheep Creek	3920138	cmp
Redmont	3920000	36 cmp
Redmont *	3920130	36 cmp
Cabin Creek	3920130	cmp
Griffith Creek *	3940000	24 cmp
West Fork Carrol Creek *	3915600	36 cmp
Carrol Creek	3915090	18 cmp
Carrol Creek	3915525	18 cmp
Carrol Creek	3915560	30 cmp
Carrol Creek *	3940000	112 x 76 pac
Carrol Creek	3915600	48 cmp
Carrol Creek *	3940000	95 x 68 pac
Johnson Creek *	3900100	28 x 42 pac
Salt Creek Tributary *	3900000	30 cmp
Salt Creek Canal *	3920000	138 x 78 pac
Carrol Creek	4260000	10 x 6 pac
Thorn Creek	4260000	48 x 72 pac
Echo Canyon *	3900140	36 cmp
Tully Creek	4260000	48 x 72 pac
South Fork Sheep Creek *	3900100	48 x 60 pac
Salt Creek Tributary *	3915023	18 cmp
Salt Creek *	3915023	15 cmp
Salt Creek Tributary *	3900060	30 cmp
Falls Creek	4260000	30 cmp
Packsaddle Creek	4260000	18 cmp

Stream	Road	Existing Size (inches)**
Kettle Creek	4260000	18 cmp
Log Creek	4260000	24 cmp
Horse Creek	4240250	33 x 50 pac
Lightening Creek	Waterhole	36 cmp
Lick Creek *	3925015	72 x 126 pac
Lightening Creek	4240345	31 x 43 pac
Rich Creek	3935390	18
Salt Creek Tributary *	3915023	24 cmp
Salt Creek Tributary *	3900000	24 cmp
Salt Creek *	3900000	36 cmp
Skookum Creek	3925000	72 cmp
Beaverdam Creek	3960000	48 cmp
PO Creek	3965230	cmp
PO Creek	3965320	36 cmp
Crazyman Creek	3965135	cmp
Mahogony Creek	3955000	72 cmp
Gumboot Creek	3900000	54 x 66 pac
North Fork Gumboot Creek *	3900000	156 x 66 pac
Gumboot Creek *	3900000	114 x 120 pac
Gumboot Creek	3900420	135 x 84 pac
Gumboot Creek	3900000	180 x 100 pac
Dry Creek *	3900000	66 cmp
Blackhorse Creek *	3900000	60 cmp
North Fork Dry Creek	3900000	96 x 72 pac
Dry Creek *	3965000	46 x 50 pac
Skookum Creek *	3960000	48 x 72 pac
Skookum Creek *	3925080	24 cmp

Stream	Road	Existing Size (inches)**
Skookum Creek *	3950115	36 cmp
North Fork Dry Creek	3962015	cmp
Little Sheep Tributary	3905000	36 cmp
Little Sheep Tributary	3905055	18 cmp
Little Sheep Tributary	3900000	30 cmp
Little Sheep Tributary	3900000	24 cmp
Big Sheep Tributary	3940000	36 cmp
Lick Creek Tributary	3900190	36 cmp
Lick Creek Tributary	3925025	36 cmp
Lick Creek Tributary	3900230	36 cmp
Lick Creek Tributary	3900234	24 cmp
Lick Creek Tributary	3900230	24 cmp
Lick Creek Tributary	3900205	18 cmp
Lick Creek Tributary	3900200	24 cmp
Lick Creek Tributary	3900200	18 cmp
Lick Creek Tributary	3900233	24 cmp
Lick Creek Tributary	3900231	cmp
Lick Creek Tributary	3900230	24 cmp
Lick Creek Tributary	3925015	30 cmp
Lick Creek Tributary	3900000	36 cmp, 15 cmp
Summit Creek Tributary	3965160	24 cmp
Summit Creek Tributary	3965172	cmp
Summit Creek Tributary	3965210	18 cmp
Summit Creek Tributary	3965211	cmp
Summit Creek Tributary	3965211	cmp
Crazyman Tributary	3965130	cmp
Crazyman Tributary	3965131	cmp

Stream	Road	Existing Size (inches)**
Crazyman Tributary	3965125	cmp
North Fork Dry Creek	3962025	cmp

* identified as fish passage barriers and have been designated as the highest priority for replacement
** "cmp" refers to corrugated metal pipe, "pac" refers tos to pipe arch culvert

All of the above culvert replacements will be completed during the ODFW designated in-water work window. If exceptions are needed, ODFW and NOAA Fisheries will be contacted to request an extension. Erosion prone areas within the proposed project areas will be stabilized. To ensure that Oregon DEQ turbidity standards are not exceeded at any point during culvert replacement, devices such as weed-free straw bales and silt fences will be used to limit sediment input into streams. All areas disturbed by construction activities will be revegetated with native seed or plant stock.

In the event that heavy equipment is needed for culvert installation or removal, all equipment will be cleaned and inspected to ensure that it is free of leaks before entering the project area. The number and length of access points through riparian areas and the amount of time that heavy equipment is in the channel will be minimized to the fullest extent possible. The number of temporary access roads will be minimized and roads will be designed to avoid adverse effects. Machinery will cross riparian areas and streams at right angles whenever possible. It will be required that an approved spill containment plan is devised before project implementation. This plan will mandate that a spill containment kit will be kept on-site throughout the duration of the project and at previously identified containment locations. Equipment (including chain saws and other hand power tools) will be refueled at a minimum of 150 feet from water bodies to prevent direct delivery of contaminants into a waterbody. In areas where it is physically impossible to refuel outside of the aforementioned 150-foot buffer, refueling will be done as far as possible from the waterbody.

Both the NOAA Fisheries guidelines for design and installation of culverts (NOAA Fisheries) Southwest Region *Guidelines for salmonid Passage at Stream Crossings*, September 2001, found at http://swr.nmfs.noaa.gov/hcd/NMWWNFSCG.pdf) and the ODFW guidelines and criteria for stream-road crossings (found at http://www.nwr.noaa.gov/1salmon/salmesa/4ddocs/orfishaa.htm) will be followed. Replacement stream-crossing structures on fish-bearing streams will be limited to one of the following options: a clear-span bridge, a bottomless arch culvert, an embedded culvert, or a no-slope culvert. No baffled culverts will be installed. All stream-crossings and culverts will be designed to pass the 100-year peak flood. Stream crossing structures will be designed to ensure that stormwater runoff is not discharged directly into streams.

Earthwork will be completed as quickly as possible. The site will be stabilized during any significant break-in work. Fresh concrete (cured less than 72 hours), concrete contaminated wastewater, welding slag and grindings, concrete saw cutting by-products, and sandblasting abrasives shall be contained and not come in contact with waterbodies or wetlands. Any new abutments or bents will be outside of the active stream channel. Fish passage will be provided for any adult or juvenile salmonid species that may be present for the life of the project. Any water intakes used for the project, including pumps used to dewater the work isolation area, will have a fish screen installed, operated, and maintained according to NOAA Fisheries' fish screen criteria.

No more than 30 culverts will be replaced each year. The WWNF will submit an annual report to the WWNF Level 1 team. The report will list the number and location of the culverts that have been replaced over the course of the previous year; monitoring results from the culvert replacement; the anticipated location and number of culverts to be replaced in the coming year; and any proposed changes or improvements to protection measures that will be made based on the results of the monitoring report from the previous year.

Roads to Trails Conversion (NLAA)

WWNF roads 3915-023 (6.6 miles), 3900-170 (4.3 miles), and 3900-140 are currently open to vehicular use. The WWNF is proposing to convert these roads to trails that would be accessible only to recreationalists for uses such as hiking and mountain biking. Roads 3915-023 and 3900-170 are native surface roads. Improperly functioning drainage structures will be repaired or replaced with water bars and seeded with native stock along the entire length of the roads.

A total of 2.3 miles of WWNF Road 3900-140 would be connected to an existing trail (Sheep Creek Trail #1800) to the north of the concrete bridge crossing Sheep Creek. Activities associated with the road to trail conversion would include placing width restricting devices such as logs and boulders at the head of the bridge, correcting surface drainage issues that may exist, and seeding the entire length of the road bed. In addition, an existing ford on Hass Creek approximately 650 feet above its confluence with Big Sheep Creek will be improved. Hass Creek is an intermittent, non-fish-bearing stream. Improving the ford will entail pulling material along the streambank back to a more natural angle and seeding it with weed-free native grass. These improvements to the ford will eliminate the potential for users to contribute sediment to the stream course when walking across the ford. All work will be done during the ODFW designated in-water work window. A combined total of approximately six miles of these project activities are within RHCAs: Big Sheep (2.3 miles), Lick Creek (1.5 miles), and Salt Creek (2.2 miles).

Road Maintenance (LAA)

Currently, 854 miles of road are administered by the WWNF within the Imnaha subbasin, with 629 miles of road open to a variety of different uses, and 225 miles of road closed. Including

both open and closed roads, the total road density for the Subbasin is 1.43 miles per square mile Approximately 72.84 miles of these roads are within the RHCA, with 14.2 of those miles within 150 feet of non-fish-bearing perennial streams, and an additional 102.4 miles within 100 feet of intermittent streams. Closed roads have been monitored annually since 1989 to ensure that the mechanisms put in place (gates, earthen berms, *etc.*) are discouraging vehicles from using the closed roads.

Open roads are maintained every one to seven years. Maintenance needs are assessed and prioritized based on the level of use the road receives, the condition of the road, and the consequent maintenance priority. Five different types of surfaces are used on the open roads: (1) Native dirt; (2) improved surfaces; (3) aggregate crushed rock; (4) bituminous (asphalt like); and (5) asphalt concrete pavement. Maintenance for all of the aforementioned road types occurs primarily between late April and early November depending on the type of maintenance, road conditions, and soil moisture level.

The following five types of maintenance are executed by the WWNF:

- Level I. This type of maintenance is done on roads closed to full-sized vehicles and is done at least once every seven years. As a part of this process, roads and ditches are rehabilitated and stabilized through the planting and seeding of native vegetation. Major drainage facilities and runoff patterns are targeted for repairs and maintenance. Closure on Level I roads occurs by first blocking and disguising the entrance to the road with elements such as water bars that will minimize erosion. Closed roads are then inspected to ensure that drainage structures that have been left in place are still functioning appropriately and that the road is no longer being used by standard width vehicles. Roads that have been closed may be reopened in the future to support management activities that would be analyzed and consulted on as needed on a project specific basis. There are approximately 225.2 miles of Level I road in the Subbasin, with 33.6 of those miles to be treated annually.

- Level II. Level II maintenance occurs on a three- to seven-year rotation basis and is executed on roads used by high clearance vehicles. Maintenance activities include cleaning culverts, maintaining water bars, seeding road beds and ditch surfaces with native grasses, and replacing ditch relief culverts. Ditch relief culverts are those that allow water from ditches to pass from above to below a road. The goal of the described maintenance activities is to protect natural resources adjacent to the roads; namely soil, native vegetation, and water. There are approximately 525.5 miles of Level II roads in the Imnaha watershed with annual maintenance expected to occur on 185.1 of those miles.

- Level III, IV, and V. All three types of maintenance occur annually on roads open to use by low clearance vehicles that provide long-term use and administration for WWNF-related activities. Examples of treatments include: (1) Patching pavement; (2) dust abatement on aggregate road surfaces; (3) chip sealing worn pavement surfaces; (4) maintaining and cleaning the surfaces of water bars; (5)seeding cut and fill slopes; and (6) trimming roadside brush and felling trees that pose hazards to motorists. There are approximately 70.7 miles of Level III roads, 30.5 miles of Level IV roads, and 2.8 miles of Level V roads within the Imnaha subbasin.

Activities associated with road maintenance include gravel crushing, water drafting, and dust abatement. Gravel used for road maintenance is collected and stored at 33 separate sites outside of RHCAs until it is used. A designated access route exists for each of the 33 gravel storage sites. Water used as a part of dust abatement activities is drafted into a 4,000 gallon tanker with a four-inched screened hose that meets NOAA Fisheries screening criteria criteria. Three of the sources from which water is drafted are on the Imnaha River and an additional three water drafting sites are on the Gumboot, Rich, and Dry Creeks. In addition, a quarry and a gravel pit are often used. If necessary, water can also be drafted from sites on Lick Creek, Echo Canyon, Griffin Creek, Little Sheep Creek, and the Wallowa Valley Improvement Canal.

Lignosite and magnesium chloride are used for dust abatement along 23.2 miles of Hat Point Road (4240) and 6.0 miles of the Imnaha Road (3995). The goal of dust abatement is to minimize the amount of dust generated by vehicle traffic and is done in response to safety concerns at a level commiserate to the amount of use the roads receive. The mixing of the dust abatement solution is done outside of the RHCA and a spill response plan will also be implemented during dust abatement activities. As a part of the Spill Response Plan, contractors will be required to have a spill kit on site during all phases of project implementation. Examples of items that will be found in the spill kits include silt fences and straw bales to prevent the spread of any chemicals and sediment.

Protection Measures

The following protection measures are described on page 323 of the BA, and will be implemented during all of the transportation activities found in section 1.2.4 of this document.

- Machinery will be operated exclusively under dry conditions.
- All instream work windows will coincide with the Oregon Guidelines for Timing of In-water Work to Protect Fish and Wildlife Resources (ODFW 2000).
- A fisheries biologists and/or a hydrologist will be consulted before and during all bridge and culvert replacements.
- All areas disturbed during project implementation will be seeded and planted with native vegetation. If monitoring reveals that the plantings and seeding efforts have failed to facilitate the development of a healthy plant community, the area will be replanted.

- Appropriate erosion control methods and materials will be used to limit sediment to streams whenever possible.
- Weed-free straw bales will be placed downstream of project areas when instream work occurs to filter fine sediment.
- Oil-absorbent clean up materials will be on-site and readily available when any piece of heavy machinery is working within the RHCA.
- No refueling or fuel storage will occur within RHCAs.
- To ensure that project designs and protection measures were adhered to and that actions associated with the proposed transportation activities had no adverse impacts on fish, monitoring reports will be completed annually and submitted to NOAA Fisheries. Monitoring that will include photo points as well as a report analyzing the success of revegetation attempts, effective erosion control measures, and confirmation that the protection measures described above were adhered to will be submitted to NOAA Fisheries.

1.2.5 Special Use Permits (SUP)

Imnaha Sprinkler Association (NLAA)

The Imnaha Sprinkler Association special use permit (SUP) authorizes six diversions that withdraw a total of 2.02 cubic feet per second (cfs), which is not to exceed 1.5 acre feet during any 30 day period, to operate between May 1 and June 30. After June 30, no water is withdrawn until May of the following year. The six diversions are on Dunlap, Loyd, Snell, Adams, and Schleur Creeks. The diversion at Dunlap Creek diverts water into approximately 200 feet of open ditch. The remaining five diversions divert water directly into buried pipes. The diversion sites are in T1S, R48E, Sections 11, 14, and 25 at Imnaha RM 24. All five creeks are tributaries to the Imnaha and are low gradient, non-fish-bearing, intermittent streams.

1.2.6 Administrative Activities

Lick Creek Guard Station (NLAA)

Located at T04S, R46E, section 35 in the Lick Creek subwatershed and measuring 12x15 acres in size, the Lick Creek Guard Station consists of seven structures, a fuel tank, and a heli-pad. The houses, guard station, and garage are outside of the RHCA of Lick Creek. Water to these facilities is supplied by a spring-fed water system and is serviced by a septic system. The remaining facilities are within 300 feet of Lick Creek. A non-fish-bearing, perennial stream bisects the northern portion of the property and runs within 50 feet of the 500 gallon fuel tank. An administrative horse pasture also exists on the site. Please refer to section 1.2.2 of this document for information regarding this pasture. The guard station is used by WWNF fire suppression crews between the months of June and October.

College Creek Guard Station (NLAA)
The College Creek Guard Station is ten acres in size and is in T1S, R48E, section 35 at Imnaha river mile 24. A 500 gallon fuel tank and eight structures occupy the site. The Imnaha River, which provides spawning and rearing habitat for SR steelhead and SR fall chinook salmon, migration for SR spring/summer chinook salmon, and falls within designated critical habitat for SR chinook, runs through the middle of the property. The building and structures including the corral and pumphouse are on the west side of the Imnaha River in the floodplain. The fuel tank is on the east side of the river situated on a hillside beside the Upper Imnaha River road approximately 100 feet from the river.

A 700 acre administrative horse pasture is adjacent to the guard station. Please refer to section 1.2.2 of this document for information regarding this pasture.

Thorn Creek Guard Station (NLAA)
The Thorn Creek Guard Station is inhabited intermittently throughout the year by various WWNF personnel. Located at T3N, R48E, section 14, at Imnaha RM 4, the guard station consists of five structures that are spread across four acres. None of the structures are within the RHCA of the Imnaha River. The bunkhouse, pump house, and outhouse are within 100 feet of Thorn Creek. Thorn Creek is an intermittent, non-fish-bearing stream. A 100-acre administrative horse pasture is next to the guard station, and is described in the section 1.2.2 of this document.

The Nez Perce Fisheries staff are authorized through a Memorandum of Understanding to use established parking sites for three travel trailers. The site, measuring less then an acre in size, is used on a daily basis from late February through the end of June. The trailers are used as base sites for 2-9 Nez Perce Fisheries personnel.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information and Critical Habitat

Snake River Steelhead
The Snake River steelhead evolutionarily significant unit (ESU) was listed as threatened on August 18, 1997 (62 FR43937). Protective regulations for Snake River steelhead were issued under section 4(d) of the ESA on July 10, 2000 (65 FR 42422). Biological information for Snake River steelhead is found in Busby *et al.* (1996). Recent counts of upstream migration at Lower Granite Dam, show at least some short-term improvement in the levels of adults returning

to spawn. The Grande Ronde and Imnaha Rivers are two of the principal subbasins in the Snake River drainage contributing to salmon and steelhead production.

The SR steelhead ESU contains portions of southeastern Washington, northeastern Oregon, and north/central Idaho. The environmental conditions within this ESU are generally drier and warmer than in other steelhead ESUs. The SR steelhead run is considered a summer run based upon adult upstream migration. The adults enter the Columbia River in the summer migrating upriver until they spawn in the spring between March and May. Runs found in the Grande Ronde and Imnaha systems are generally A-run fish, or fish that have spent one year in the ocean.

There are very few annual estimates of steelhead returns throughout the Snake River basin. Returns over the Lower Granite Dam were low during the 1990's, however run estimates in the Grande Ronde and Imnaha Rivers have improved since the 1990's (NOAA Fisheries2003). The long-term population trends have remained negative, while the short term population trends for the ESU has improved in comparison to the time frame analyzed in the last status review (NOAA Fisheries 2003). The median long-term population growth rate (λ) is 0.998 based upon the assumption that only natural origin spawners are returned from wild stock (NOAA Fisheries 2003). The short-term λ based on the same assumption is 1.013 (NOAA Fisheries 2003). Assuming that both hatchery and wild fish contribute to the natural production in proportion to their numbers the long-term λ is 0.733 and short-term λ is 0.753 (NOAA Fisheries 2003). In spite of the recent increases in numbers the majority of populations in the ESU with abundance data are still well below the interim abundance targets (Table 10).

Table 10. Interim Abundance Targets for Snake River steelhead in the Grande Ronde River Spawning Aggregation (Adapted from NOAA Fisheries2003)

ESU/Spawning Aggregations	Interim Abundance Targets	Interim Productivity Objectives
Snake River Steelhead ESU		Snake River ESU steelhead populations are currently well below recovery levels. The geometric mean Natural Replacement Rate (NRR) will therefore need to be greater than 1.0.
Grande Ronde		
Lower Grande Ronde	2600	
Joseph Creek	1400	
Middle Fork	2000	
Upper Mainstem	4000	
Imnaha River	2700	

Adult SR steelhead enter freshwater from May to August, and begin to move into the Imnaha River system in February. Spawning occurs from March through May. After spawning, adult steelhead individuals of this population die, so they are not present in the system after June. Juveniles are present all year, but are likely to move to cool water refugia during the warm summer months. SR steelhead spawn and rear in the Imnaha River, Big Sheep Creek, and throughout tributaries such as Cow Creek, Freezeout Creek, and Grouse Creek.

Hatchery fish are widespread in the SR steelhead ESU. NOAA Fisheries concludes that the SR steelhead are not presently in danger of extinction, but likely to become extinct in the foreseeable future (NOAA Fisheries 1996b). This is primarily due to the declining abundance of natural runs. As with chinook salmon, the most significant barriers to steelhead presence in the Imnaha River subbasin are the many dams along the Columbia and Snake Rivers that greatly inhibit migration. Possible genetic introgression from hatchery stocks is another threat. NOAA Fisheries is also concerned about the degradation of freshwater habitats within the region, especially the impact of grazing, irrigation diversions, and hydroelectric dams on steelhead. However, the evaluation of threats to SR steelhead is clouded by uncertainty around population sizes, degree of interaction between hatchery and natural stock, and relationships between anadromous and resident forms of steelhead.

Essential features of the adult spawning, juvenile rearing, and adult and migratory habitat for this species are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions. (Bjornn and Reiser, 1991; NOAA Fisheries, 1996b; Spence *et al.*, 1996). The essential features that the proposed project may affect are: Substrate, water quality, water temperature, water velocity, cover/shelter, food, and riparian vegetation.

Snake River Fall Chinook

Snake River fall chinook spawn above Lower Granite Dam in the mainstem Snake River and in the lower reaches of the larger tributaries. Adult fall chinook enter the Columbia River in July and August. Spawning occurs from October through November. Juveniles emerge from the gravels in March and April of the following year, moving downstream from natal spawning and early rearing areas from June through early fall.

Fall chinook returns to the Snake River generally declined through the first half of the 1900's (Irving and Bjornn 1981). In spite of the declines, the Snake River basin remained the largest single natural production area for fall chinook in the Columbia drainage into the early 1960s (Fulton 1968). Spawning and rearing habitat for Snake River fall chinook was significantly reduced by the construction of a series of Snake River mainstem dams which blocked passage to historical spawning on the upper Snake River. Currently, natural spawning is limited to the area from the upper end of Lower Granite Reservoir to Hells Canyon dam, and the lower reaches of the Imnaha, Grande Ronde, Clearwater, and Tucannon Rivers.

SR fall chinook return from the ocean and between 2-5 years of age, and typically enter the Columbia River in July and August, reaching the mouth of the SR between late August and early October. Spawning then occurs during the latter part of October and into November. Designated critical habitat has been designated for 23 miles along the Imnaha River (from the mouth of the river to RM 23. Historically SR fall chinook may have spawned up to the town of Imnaha (RM 23) on the Imnaha River, but now only use the lower five miles of the Imnaha River for spawning.

The SR fall chinook population was estimated to be approximately 72,000 spawners in the 1930's and 1940's (NOAA Fisheries 1998). The population suffered a severe decline in the 1970's (Meyers *et al.* 1998 and Waples *et al.* 1991). There were several factors for this decline, including the loss of spawning and rearing habitat, the increase of hatchery production, and over-harvest. Recently the population abundance has been improving. From 1997 to 2001, the geometric mean of the naturally-spawning fish returning over the Lower Granite Dam was 817. In 2001, the number of natural spawners returning over Lower Granite was 2600, which is the first time that the number of natural spawning fish has met or exceeded the interim abundance target (Table 11). The long and short term trends in natural returns are positive1.013 and 1.188 respectively (NOAA 2003). If hatchery spawners have been equally as effective as natural-origin spawners in contributing to brood year returns, the long-term λ estimate is 0.899 and the associated probability that λ is less than 1.0 is estimated as 98.7% (NOAA 2003).

The proposed actions discussed within this Opinion are within designated critical habitat for SR spring/summer and fall chinook salmon. Critical habitat for SR spring/summer and fall chinook salmon was designated on December 28, 1993, (58 FR 68543). Critical habitat for SR chinook salmon encompasses the major Columbia River tributaries known to support this ESU, including the Salmon, Grande Ronde, and Imnaha waterways below long-standing (more than 100 years duration), naturally-impassable barriers, and therefore includes the proposed project area within the Imnaha subbasin. The riparian zone adjacent to these waterways is also considered critical habitat. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient/chemical regulation, stream bank stability, and input of large woody debris/organic matter.

Snake River Spring/Summer Chinook

Snake River spring/summer chinook enter the Columbia River in late February and early March in high elevation areas. The fish hold in the cooler deep pools until the late summer and early fall when they return to their native streams and begin spawning. The eggs incubate through the fall and winter and emergence begins in the early winter and late spring. Juvenile spring/summer chinook exhibit a stream type life history. The fish will rear for one year in fresh water before they migrate out to the ocean in the spring of their second year. The fish generally return from the ocean after two or three years.

SR spring/summer chinook use relatively small, higher elevation streams for spawning and early juvenile rearing. They migrate swiftly to sea as yearling smolts. The returning spring-run chinook reach the Snake River in April, whereas returning summer-run adult chinook reach the Snake River in July. Peak spawning for both spring and summer chinook is in the fall (mid August through September). The Grande Ronde River basin contains spring and summer runs. Populations from this ESU migrate to the ocean as yearlings, mature at ages four and five, and are rarely taken in ocean fisheries.

There are several factors for the decline of Snake River spring/summer chinook salmon. Habitat loss from hydroelectric development, habitat degradation from land use activities, and impacts from hatcheries are all responsible for the decline of the stocks. Recent abundance for the ESU has been increased. The geometric mean return of naturally-reproducing spawners from 1997 to 2001 was 3,700, which is well below the interim abundance targets for the ESU. The 2001 run was estimated to be 17,000 naturally-reproducing spawners (NOAA 2003). The short-term and long-term productivity estimates (λ) are still well below the interim productivity target for the ESU (Table 11). The Grande Ronde and Imnaha Rivers had the greatest increase in λ for the short-term.

Table 11. Interim abundance and productivity targets for Snake River spring/summer chinook and SR fall chinook salmon in Oregon (adapted from NOAA 2003)

ESU/Spawning Aggregations	Interim Abundance Target	Interim Productivity Target
Snake River Spring/Summer Chinook		"For delisting to be considered, the eight year (approximately two generation) geometric mean cohort replacement rate of a listed species must exceed 1.0 during the eight years before delisting. For spring/summer chinook salmon, this goal must be met for 80% of the index areas available for natural cohort replacement rate estimation." (Proposed Snake River Recovery Plan; NOAA Fisheries 1995)
Grande Ronde River	2000	
Imnaha River	2500	
Snake River Fall Chinook ESU	2500	

There are 137.7 miles of designated critical habitat for SR spring/summer chinook salmon in the Imnaha subbasin. SR spring/summer chinook salmon use approximately 130.6 miles of this

habitat for spawning, rearing, and as a migration corridor. The additional 7.1 was historically used for spawning. Spawning occurs in the Imnaha River, Big Sheep Creek, Lick Creek, and in the South Fork Imnaha River. Surveys were first done on the Imnaha in 1949, and in the early 1960's on Big Sheep Creek, and continue to be conducted annually by ODFW throughout the Subbasin.

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). In conducting analyses of habitat-altering actions under section 7 of the ESA, NOAA Fisheries uses the following steps: (1) Consider the status and biological requirements of the species; (2) evaluate the relevance of the environmental baseline in the action area to the species' current status; (3) determine the effects of the proposed or continuing action on the species; (4) consider cumulative effects; and (5) determine whether the proposed action, in light of the above factors, is likely to appreciably reduce the likelihood of species survival in the wild or adversely modify its critical habitat. In completing this step of the analysis, NOAA Fisheries determines whether the action under consultation, together with all cumulative effects when added to the environmental baseline, is likely to jeopardize the continued existence of the ESA-listed species or result in destruction, adversely modify their critical habitat, or both. If NOAA Fisheries finds that the action is likely to jeopardize the ESA-listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the initial steps of defining the biological requirements and current status of the listed species, and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action, (2) the environmental baseline, and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for

both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the proposed action will destroy or adversely modify critical habitat it must identify any reasonable and prudent alternatives available.

For the proposed action, NOAA Fisheries' analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for juvenile and adult migration, spawning, and rearing of the SR spring/summer and fall chinook salmon under the existing environmental baseline.

2.1.3 Biological Requirements

The first step the NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon and steelhead is to define the species' biological requirements that are most relevant. NOAA Fisheries also considers the current status of the listed species taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list SR salmon and steelhead for ESA protection, and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for SR spring/summer chinook salmon and SR steelhead to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful adult and juvenile migration, spawning and rearing. SR spring/summer, SR fall chinook salmon, and SR steelhead survival in the wild depends upon the proper function of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse impact of current practices. In conducting analysis of habitat altering actions and essential habitat elements, NOAA Fisheries defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and utilized a "habitat approach" to its analysis (NOAA Fisheries 1999).

2.1.4. Environmental Baseline

The environmental baseline is an analysis of the effects of past and on-going human-caused and natural factors leading to the current status of the species or its habitat and ecosystem within the action area. The "action area" is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR 402.02). The action area for this consultation is the Imnaha subbasin.

The Imnaha subbasin is in the northeast corner of Oregon in Wallowa County. The headwaters originate in the Eagle Cap Wilderness and the Imnaha flows into the Sanke River approximately 48 miles upriver of Lewiston, Idaho. The subbasin is composed of three watersheds Lower Imnaha River, Upper Imnaha River, and Big Sheep Creek. These watersheds are composed of 46 subwatersheds.

The Imnaha subbasin consists of 543,220 total acres of land. Approximately 383, 390 acres (71%) is National Forest land, 550 acres (less than 1%) is administered by the Bureau of Land Management (BLM), 340 acres (less than 1%) is administered by the State of Oregon, and 158,940 acres (29%) is privately owned.

Elevations in the subbasin range form over 9,700 feet to 958 feet at the mouth of the Imnaha River. Stream gradients range from 1-3%at the mouth of the river to 4-21% in the headwater areas. The headwater areas are typified by U-shaped glacial valleys. The valley forms quickly change to V-shapes with steep side slopes and narrow valley floors. The last five miles of the river flow through a narrow gorge with nearly vertical sidewalls. Cobbles are the dominant stream substrate with gravels being the subdominant substrate type. Some reaches have significant bedrock, boulders, and sand. The overall sinuosity of the mainstem Imnaha River is low.

Environmental baseline conditions within the action area were evaluated for the subject actions at the project level and the watershed scales. The results of this evaluation, based on the "matrix of pathways and indicators" (MPI) described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NOAA Fisheries 1996) follow. This method assesses the current condition of instream, riparian, and watershed factors that collectively provide properly functioning aquatic habitat essential for the survival and recovery of the species.

General watershed habitat condition trends are summarized in Table 9. Table 11, on page 60 of the BA, provides specific habitat conditions for each subwatershed in the Subbasin.

2.1.5 Analysis of Effects

The effects determination in this Opinion was made using a method for evaluating current aquatic conditions, the environmental baseline, and predicting effects of actions on them. The effects of actions are expressed in terms of the expected effect (restore, maintain, or degrade) on aquatic habitat indicators in the action area. The following effects are expected to occur as described, to SR steelhead and SR spring/summer chinook salmon, as individuals of these ESUs are present throughout the Imnaha River subbasin throughout the year as either eggs, pre-emergent alevins, juveniles, or adults. SR fall chinook salmon are present in the subbasin for parts of the year, while absent during other periods. Effects from some actions, such as in-water construction carried the during the summer, are expected to be minimal to SR fall chinook salmon.

Activities Involving In-Water Construction Activities (LAA Culvert and Bridge Work)
Potential impacts to listed salmonids from the in-water and near-water construction activities include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting for construction. Potential indirect effects include behavioral changes resulting from elevated turbidity level (Sigler *et al.* 1984, Berg and Northcote 1985, Whitman *et al.* 1982, Gregory 1998), during riverbank habitat alterations.

Table 11. Habitat conditions in the watersheds of the Imnaha subbasin

MPI Pathways	MPI Indicators[1]	Watersheds		
		Big Sheep	**Lower Imnaha**	**Upper Imnaha**
Water Quality	Temperature	A	N	A
	Sediment	A	R	A
	Chem/Cont.	A	A	A
Access	Physical barriers	A	A	A
Habitat Elements	Substrate Embededness	A	R	A
	Large Woody Debris	A	N	A
	Pool Freq./Quality	N	N	N
	Large Pools	N	N	N
	Off Channel Habitat	A	A	A
	Refugia	A	A	A
Channel Conditions & Dynamics	Width/depth ratios	A	A	A
	Streambank Condition	R	A	A
	Floodplain connectivity	A	A	A
Flow/ Hydrology	Change in Peak Base Flow	R	A	A
	Drainage Network Increase	A	A	N
Watershed Condition	Road Density and Location	R	A	N
	Disturbance History	R	A	A
	RHCAs	R	A	A

[1] The condition of each MPI parameter is indicated in the following manner:
A= properly functioning, R= functioning at risk, N= not properly functioning

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorus fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Birtwell *et al.* 1984, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbid plumes (McLeay *et al.* 1984, 1987, Sigler *et al.* 1984, Lloyd 1987, Scannell 1988, Servizi and Martens 1991). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a potentially positive reported effect is providing refuge and cover from predation (Gregory and Levings 1988).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorus fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser 1991). These effects are expected to be minimal due to the use of sediment control measures

such as silt fences and straw bales and completing all instream construction activities during periods of low flow (July and August).

Increased sedimentation may also lead to increased embeddness of spawning substrates downstream of the project. Instream work scheduled for these projects will take place during the ODFW in-water window for the area. Due to the typically low flows present in the individual project areas during this time, sedimentation rates are expected to be minimal. Disturbance of riparian vegetation could result from operation of heavy machinery near the stream and could lead to decreased shade, increased water temperatures, and decreased streambank stability until riparian vegetation is re-established. The WWNF has included several conservation measures that will ensure riparian disturbance resulting from the construction activities will remain minimal. These include operating from existing roads and planting and seeding disturbed areas. For these reasons, the disturbance should be minimal and temporary.

There is also the potential for fuel or other contaminant spills associated with use of heavy equipment in or near the stream. As with all construction activities, accidental release of fuel, oil, and other contaminants may occur. Operation of the back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into the channel of a water body or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non target riparian vegetation (Spence *et al.* 1996).

Excavation in the stream channel associated with bridge and culvert work will elevate the risk for chemical contamination of the aquatic environment within the action area. Because the potential for chemical contamination should be localized and brief, the probability of direct mortality is negligible. The pollution and erosion control plan developed by the WWNF will further reduce the chance of adverse impacts from contaminant spills or leaks. In-water work timing during the preferred in-water work timing will minimize the risk from chemical contamination during in-water work activities. The contractor would also be required to develop, implement and monitor a site specific pollution control plan in an effort to further minimize risk to the aquatic environment.

These adverse effects are expected to be temporary and of short duration. The maximum period of time during which construction activities will occur is one month. In the long-term, all aquatic habitat factors will be maintained. Fish passage and stream channel morphology at the project sites will improve as a result of the proposed actions

Road Maintenance

Road Maintenance activities can have adverse effects to salmonids and their habitat. Delivery of fine sediment to stream courses can result from activities such as road blading and cleaning culverts and ditches. However, proper road maintenance can also keep existing roads in good condition and identify and correct problems (Furniss *et. al.* 1991). Road maintenance activities that may introduce sediment into streams will have effects similar to those described above, although the amount of sediment delivered will most likely be less than that generated during instream construction activities.

Use of dust abatement chemicals (magnesium chloride and lignin sulfonate products) near streams can have negative effects on water quality. Heffner (1996) concluded that although the overall risk to aquatic life from using dust abatement compounds is low, in certain circumstances, their use may cause some adverse effects. Salmonids have been shown to be able to withstand chloride level of approximately 400 parts per million (ppm) (Heffner 1996). However, chloride levels in water bodies receiving runoff from application areas would probably drop to 70 ppm where a 3 to 50 foot buffer between the application site and the water exists (Schwendddman 1981). Plant life in the direct vicinity of the application site are at the more risk, as application of dust abatement compounds can cause necrosis of plant tissues (Heffner 1996).

Lignon sulfonate and similar dust abatement chemicals have to present in relatively high levels to cause mortality in rainbow trout (the lethal concentration required to kill 50% of individuals in 48 hours (LC_{50}) has been calculated to be between 5,200 and 7,500 ppm), but it does have some adverse sublethal effects at much lower concentrations (Heffner 1996). A retarding effect on growth was observed at concentrations as low as 160 ppm because lignon sulfonate seems to impair the activity of several digestive enzymes. It can be expected however, that any sublethal effects would be short lived, as lignon sulfonate is water soluble, does not bioaccumulate, and is usually only present during short periods when runoff transports it to streams. Lignon sulfonate can also raise biological oxygen demand (BOD) in receiving water bodies although this seems to be more of a concern when the exposure is chronic as in the case of streams receiving pulp mill effluent.

Water drafting for road maintenance activities from streams during the low flow periods of spring and fall is reasonably certain to result in adverse effects to rearing juvenile salmonids and spawning adult chinook salmon. Short-term reductions in flow may cause fish relocate to areas of greater water depth or strand fish in residual pool. Once these fish move from cover they become susceptible to predation from birds, piscivorus fish, and mammals. Reductions in flow may also interrupt chinook spawning activities or expose eggs or pre-emergent fry. In streams where multiple drafts occur in a day, temperature increases may result from reduced flows. Screens on pumps used for water drafting will prevent juvenile fish from being entrained during water withdrawal.

Livestock Grazing

The WWNF has determined that activities on the Marr Flat livestock grazing allotment are LAA SR spring/summer chinook and SR steelhead.

Impacts of livestock grazing to stream habitat and fish populations can be separated into direct and indirect effects. Direct effects are those which contribute to the immediate loss or harm to individual fish or embryos (*e.g.*, directly stepping on a fish, trampling a redd that results in the actual destruction of embryos, or dislodging the embryos from the protective nest and ultimately destroying eggs). Indirect effects are those impacts which occur at a later time, causing loss of specific habitat features (*e.g.*, undercut banks, sedimentation of spawning beds), localized reductions in habitat quality (*e.g.*, sedimentation, loss of riparian vegetation, changes in channel stability and structure), and, ultimately, cause loss or reductions of entire populations of fish, or widespread reductions in habitat quantity and/or quality.

2.1.5.1 Direct Effects of Livestock Grazing to SR Chinook and Steelhead

Direct effects of livestock grazing may occur when livestock enter the streams occupied by SR chinook and steelhead to loaf, drink, or cross the stream. During the early phases of their life cycle, SR chinook and SR steelhead have little or no capacity for mobility, and large numbers of embryos or young are concentrated in small areas. Livestock entering fish-spawning areas can trample redds, and destroy or dislodge embryos and alevins. Belsky *et al.* (1997) provide a review of these direct influences on stream and riparian areas. Wading in streams by livestock can be assumed to induce mortality on eggs and pre-emergent fry at least equal to that demonstrated for human wading (Roberts and White 1992). In this investigation, a single wading incident upon a simulated spawning bed induced 43% mortality of pre-hatching embryos. In a recent (July 12, 2000) occurrence of unauthorized livestock grazing in the Sullens Allotment on the Malheur National Forest, five out of five documented steelhead redds in a meadow area of a Rosgen C-type stream channel (Rosgen 1996) in Squaw Creek (Middle Fork John Day River subbasin) were trampled by cattle (U.S. Forest Service memorandum, August 17, 2000).

Avoidance of direct impacts to SR chinook and SR steelhead spawning areas can be achieved by scheduling grazing in pastures containing spawning habitat to occur when spawning is not occurring and pre-emergent alevins are not in gravels, or by excluding known spawning areas from livestock access. In some allotments or pastures, there are pre-existing natural topographic, geologic, and vegetative features, or high spring water flows that naturally exclude or minimize livestock use from spawning areas. Other forms of direct take (*e.g.*, harassment of SR chinook and SR steelhead by livestock when livestock enter or are adjacent to occupied habitat, resulting in SR chinook and steelhead behavioral modifications) are more difficult to address. Direct take in the form of harassment can be reduced in the long term by rangeland management that results

in better riparian and in-channel habitat conditions, and create more cover and other important habitat features conducive to SR chinook and SR steelhead survival and recovery.

Cattle wading into a stream to loaf, drink, or cross the stream have the potential to frighten juvenile SR chinook and steelhead from stream side cover. Once these juveniles are frightened from cover and swim into open water, they become more susceptible to predation from larger fish and avian predators. However, NOAA Fisheries believes that the risk of mortality of juvenile salmonids due to flushing from cover by watering cattle is minimal.

2.1.5.2 Direct and Indirect Effects of Livestock Grazing to Salmonid Habitat

Numerous symposia and publications have documented the detrimental effects of livestock grazing on stream and riparian habitats (Johnson *et al.* 1985; Menke 1977; Meehan and Platts 1978; Cope 1979; American Fisheries Society 1980; Platts 1981; Peek and Dalke 1982; Ohmart and Anderson 1982; Kauffman and Krueger 1984; Clary and Webster 1989; Gresswell *et al.* 1989; Kinch 1989; Chaney *et al.* 1990, Belsky *et al.* 1997). These publications describe a series of synergistic effects that can occur when cattle over-graze or otherwise affect riparian areas. Over time, woody and hydric herbaceous vegetation along a stream can be reduced or eliminated. Livestock trampling causes streambanks to collapse, and without vegetation to slow water velocities, hold the soil, and retain moisture, flooding causes more erosion of streambanks, and the stream becomes wider and shallower, and in some cases downcut. The water table drops, and hydric, deeply rooted herbaceous vegetation dies out and is replaced by upland species with shallower roots and less ability to bind the soil. The resulting instability in water volume, increased summer water temperature, loss of pools and habitat adjacent and connected to streambanks, and increased substrate fine sediment and cobble-embeddedness adversely affect SR chinook and steelhead and their habitat. Specific effects to SR chinook and SR steelhead habitat elements are described below.

2.1.5.3 Riparian Vegetation and Shade

In areas under historic season-long grazing, major vegetation changes can and have taken place with changes in livestock use. Routinely grazing an area too late in the growing season can cause adverse changes in the plant community. Individual plants are eliminated by re-grazing them during the growing season and not allowing adequate recovery after grazing. Regardless of seral stage, at least six inches of residual stubble or regrowth is recommended to meet the requirements of plant vigor maintenance, bank protection, and sediment entrapment (Clary and Webster 1989). More than six inches of stubble height may be required for protection of critical fisheries or easily eroded streambanks and riparian ecosystem function (Clary and Webster 1989). In the Blue Mountains of Eastern Oregon, regrowth of herbaceous vegetation often does not occur after July (Gillen *et. al.* 1985). Consequently, livestock use of riparian vegetation in

the summer and fall needs to be tightly controlled to ensure adequate stubble height is present to protect streambanks during high stream flows in winter and spring.

Over time, entire plant communities can change as a result of heavy or prolonged grazing pressure. In mountain riparian systems of the Pacific Northwest, the replacement of native bunch grass with Kentucky bluegrass has occurred in many areas. Kentucky bluegrass has established itself as a dominant species in native bunch grass meadows as a result of overgrazing and subsequent habitat deterioration. Plants in the early seral stage community do not provide as much protection for the watershed and streambanks. Many forbs and annual plants that frequently dominate early seral plant communities do not have the strong deep root systems of the later seral perennials such as bunch grasses, sedges, rushes, shrubs, and willows. Kauffman *et al.* (1983) found that when grazing in moist meadows was halted, succession towards a more mesic/hydric plant community occurred.

Removal of riparian vegetation reduces habitat quality, resulting in negative effects to fish production (Platts and Nelson 1989). Reductions in streambank cover related to overhanging vegetation, root vegetation, and undercut banks has been correlated to reduced fish production (EPA 1993). These effects are particularly evident in meadow systems, where herbaceous vegetation may provide the only shade to stream channels. Stream cover in hardwood dominated riparian systems can also be damaged, in some situations, by livestock grazing. Cattle often begin to browse woody species when herbaceous stubble heights fall below 10 cm (approximately four inches) (Hall and Bryant 1995). Others suggest that 10-20 cm (approximately 6-8 inches) of herbaceous residual stubble height may be needed to protect hardwoods, especially during late season grazing (Clary and Leininger 2000).

In a study of late season grazing in the Blue Mountains of Eastern Oregon, Kauffmann *et al.* (1983) found that shrub use was generally light except on willow dominated gravel bars. They conclude that on gravel bars, succession was retarded by livestock grazing. In a later study in the same area, Green and Kauffman (1995) found livestock disturbance and ecosystem response to be highly variable among plant communities. In areas rested from grazing in this study, abundance of undesirable non-native species decreased. They also found that in grazed areas, height, establishment, and reproduction of woody species on gravels bars was less than in ungrazed areas. These studies suggest that although livestock grazing may not have adverse effects to mature individuals of wood species such as willows, recolonization of disturbed areas such as gravel bars may be impeded by livestock grazing.

2.1.5.4 Streambank Stability and Channel Morphology

Removal of streambank/riparian vegetation along with mechanical bank damage reduces the structural stability of the stream channel with several resultant negative impacts to fish productivity (EPA 1993, Platts 1991). Several studies have shown that heavy livestock grazing

pressure causes significant streambank damage (Kaufman *et al.* 1983, Clary and Kinney 2002, Hackey 1989). Other studies indicate that light or moderate grazing pressure did not result in significant streambank damage (Buckhouse *et al.* 1981).

Riparian areas over-grazed by cattle often have reduced salmonid living space caused by increased stream channel widening and increased width/depth ratios (Platts and Nelson 1989, EPA 1993). When riparian areas are over-grazed, a synergistic adverse effect on streambank stability occurs. As stubble height of herbaceous vegetation along streambanks decreases, livestock eating this vegetation must move more frequently to achieve intake needs. Increased movement leads to trailing in riparian areas causing more compaction and bank damage (Clary and Lenninger 2000).

2.1.5.5 Water Quality

Removal of riparian vegetation from grazing results in increased insolation reaching streams, leading to cumulative increases in downstream temperatures (Barton *et al.* 1985). This is especially true for arid watersheds, such as the Imnaha River basin. SR chinook and SR steelhead could suffer take in the form of harm if temperatures of streams in the action area continue to exceed those suitable for steelhead rearing.

2.1.5.6 Prey Base

The cold water communities rearing juvenile salmonids rely on require minimum DO levels of between six and eight mg/L (ODEQ 1995). The aquatic invertebrates and other cold water fish rearing juvenile salmonids rely on for food require DO levels in this range. As temperatures increase and DO levels drop, these communities shift from salmonids and less tolerant aquatic invertebrates such as mayflies and stoneflies, to a more cool water structure dominated by sculpins and tolerant aquatic invertebrates such as chironomids. In a study of high desert streams, Tait *et al.* (1994) found that less palatable trout prey dominated the food base in warm water stream reaches exposed to sunlight.

Inputs of fine sediment resulting from livestock trampling banks could also reduce benthic invertebrate abundance. Studies have shown that sediment inputs resulting in substrate embeddedness of greater than one third can result in a decrease in benthic invertebrate abundance and thus a decrease in food available for juvenile salmonids (Waters 1995).

Reducing riparian vegetation can also reduce habitat for terrestrial insects, which are an important food for salmonids (Platts 1991). Riparian vegetation also directly provides organic material to the stream, which makes up for about 50 % of the streams nutrient energy supply for the food chain (Cummins 1974 *cited in* Platts 1991). In headwater stream communities, riparian vegetation produces the bulk of the detritus that provides up to 90% of the organic matter

necessary to support productivity in these systems (Cummins and Spangler 1978). This allochthonous material provides an important food source for aquatic insects, that in turn, become prey for salmonids. Consequently, removal of riparian vegetation can affect the diet of fish by reducing production of both terrestrial and aquatic insects (Chapman and Demory 1963).

2.1.5.7 Substrate and Sediment

Damage to streams in the western United States from livestock grazing is largely due to the generation of excess sediment caused by livestock overuse of riparian areas (Waters 1995). Cattle or sheep trampling streambanks and subsequent erosion adds fine sediments to stream substrates. At great risk are salmonid spawning reaches used by anadromous Pacific salmonids and inland trout (Waters 1995). Increases in fine sediment lead to greater substrate embeddedness and a decrease in interstitial spaces between gravel substrate important for salmonid spawning. Increases in substrate embeddedness impair food production as described above and block refugia for young salmonids (Rinne 1990). A general reduction of the quality of spawning and rearing habitat available occurs in these circumstances. Salmonid survival at early life stage has been directly linked to the amount of surface fines in stream substrates (Rich *et al.* 1992, EPA 1993). Juvenile salmonids are dependant on clean substrate for cover, especially for over-winter survival (EPA 1993). Successful salmonid spawning requires clean gravels with low fine sediment content (Spence *et al.* 1996).

2.1.5.8 Peak/ Base Streamflow

Channel downcutting caused by riparian degradation can lower local water tables and reduce the volume of base flow available in dry seasons and periods of drought (EPA 1993). Riparian vegetation has been linked to the water-holding capacity of stream side aquifers (Platts 1990). As riparian vegetation is removed by livestock grazing and stream side soils are compacted by livestock hooves, the ability of areas to retain water is decreased. As aquifers lose their capacity to hold water and slowly deliver water to the stream, differences between peak and base discharge rates increase dramatically (EPA 1993). When this occurs, high flows in the spring tend to increase in volume, leading to bank damage and erosion. Summer and fall base flows are decreased, often resulting in flows that are insufficient to provide suitable rearing habitat for juvenile salmonids. Some streams that flowed perennially may experience periods of no flow in the summer or fall.

2.1.5.9 Pool Quality/Quantity

Instream pools are important habitat for both juvenile and adult salmonids. Fish abundance is related to the diversity of habitats and number and quality of instream pools (EPA 1993). Rearing juvenile salmonids use slow water habitat found in pools, while adult salmonids make use of cover and deep water found in pools during spawning migrations. Pools with undercut

banks are important rearing areas for juvenile salmonids (Bjornn and Reiser 1991). These areas provide overhead cover and water velocities ideal for both juvenile and migrating adult salmonids. Bank trampling by livestock can destroy undercut banks reducing hiding cover for fish. Introduction of fine sediments to streams can fill in pools, reducing depth and covering coarse substrates.

2.1.5.10 Minimizing Effects from Livestock Grazing

With the implementation of PACFISH in 1995, many riparian areas in the Imnaha subbasin have management programs in place to protect and enhance their condition. In an effort to avoid the abovementioned adverse effects that can result from improper livestock grazing, the WWNF has made many adjustments to their range programs. Many riparian areas are now fenced to exclude cattle. This is one of if not the most effective technique to speed recovery and protect riparian areas from damage from livestock grazing. According to the BA, fishery biologists, hydrologists, and range conservationists indicate that the majority of the perennial streams on the WWNF administered livestock grazing allotments are showing improving trends in grass, shrub growth, vigor and streambank stability. These trends are noted through general observation and documented by photographs and riparian survey data.

Permitees rely on salting, herding, and upland water sources to keep cattle away from unfenced riparian areas. Some information is available on the effectiveness of these techniques, but for the most part, results are conflicting. Erhart and Hansen (1997) cite three studies done in Oregon on the effectiveness of upland water sources and mineral supplements on reducing use of stream areas by cattle. In two studies, cattle use of stream areas was reduced by the use of these techniques while another study demonstrated that these techniques did not significantly alter cattle distribution in riparian areas. Riding and herding livestock away from riparian is a commonly used technique on Forest Service. However, little information beyond anecdotal accounts, is available to demonstrate the effectiveness of this technique.

Pasture or unit rotations have been altered to minimize or eliminate the potential for livestock interference with SR chinook and SR steelhead spawning. Utilization standards have been established in each unit or pasture containing riparian areas. Permittees are expected to meet these standards each grazing season and the land management agencies rely on a monitoring plan to ensure compliance with these standards.

Compliance or implementation monitoring is essential to the success of any grazing program (Leonard *et al.* 1997). According to the BA, the WWNF will adaptively manage allotments, changing livestock numbers, season of use, or rotation patterns if riparian utilization standards are not met. These agencies will rely on the IIT implementation monitoring program (USDA and USDI 2002) to direct monitoring efforts in the Imnaha River subbasin.

2.1.5.11 Effects of Livestock Grazing on the Marr Flat Allotment

The primary concern with livestock grazing on the Marr Flat allotment is interference with SR steelhead spawning activities and potential redd trampling. Livestock on the Marr flat allotment are turned out at the bottom of the Imnaha River Canyon and then move uphill following the green-up of herbaceous vegetation. As they do this, livestock tend to use the swales and draws associated with the Imnaha River tributaries. This puts the livestock in close proximity to active SR steelhead redds that are present in these tributaries. Although the WWNF expects the potential for redd trampling or interference with spawning activities to be low, it is not insignificant or discountable, therefore this proposed action is LAA for SR steelhead.

The WWNF also expects that the conservation measures associated with livestock grazing on this allotment will prevent adverse effects to salmonid habitat, the best available information indicates that livestock grazing on this allotment will most likely result in some localized bank trampling and removal of stream side vegetation. However, the conservation measures for this allotment will ensure these effects will be minimal and localized and no habitat elements will be degraded at the watershed scale.

2.1.5.12 Concurrence on NLAA Activities

he WWNF, has determined that the majority of their ongoing and proposed activities occurring in the Imnaha subbasin are NLAA SR steelhead, SR fall chinook salmon, SR spring/summer chinook salmon or their designated critical habitat. These activities and corresponding effects determinations are summarized in Table 1. Specific rationale for each activities' effects determination can be found in section 1.2 of this Opinion. The action agencies have developed conservation measures, project design criteria, and other protective measures to ensure that these activities avoid adverse effects to listed fish species and their designated critical habitat. These protective measures are described with their respective actions in section 1.2 of this Opinion as well as in the BA.

NOAA Fisheries concurs with the NLAA effects determinations made by the WWNF. Concurrence is based on the following considerations: (1) The ongoing and proposed activities will not result in the degradation of any aquatic habitat element essential for the survival and recovery of SR steelhead, SR fall chinook, SR spring/summer chinook salmon or their designated critical habitat; (2) the ongoing and proposed activities will not prevent or retard the attainment of RMOs; and (3) the ongoing and proposed activities will not result in take of SR steelhead, SR fall chinook, SR spring/summer chinook salmon. Therefore, the proposed project is not reasonably certain of causing incidental take SR spring/summer chinook salmon, SR fall chinook salmon, or SR steelhead. This concludes consultation on the NLAA actions.

2.1.6 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The "action area" for this consultation is the Imnaha River subbasin.

The BA identifies timber harvest, livestock grazing, agricultural, recreation and tourism, and water use as non-Federal actions that are reasonably certain to occur within the action area. In 1997, a large flood occurred in the Imnaha River. Since this event, landowners have been stabilizing streambanks, replanting riparian vegetation and replacing roads and bridges.

The primary water withdrawal affecting flow in the Imnaha River subbasin occurs in the Big Sheep watershed. The Wallowa Valley Improvement District diverts water from Big Sheep Creek and routes it through the an irrigation canal. Along the way, the canal gathers water from Little Sheep Creek, Redmont Creek, Canal Creek, Ferguson Creek, and McCully Creek. The canal interrupts the movement of fish within these tributaries to some degree. The intake at Big Sheep Creek is not screen, so movement of fish in and out of the canal and the tributaries of Big Creek does occur. The water right for the canal is 162.6 cfs during the irrigation season (April 1-October 15). The water right also allows for diversion of 20-30 cfs for watering cattle during non-irrigation periods. The canal carries approximately 90 cfs, so this is the maximum amount of water diverted from this watershed.

Along the mainstem Imnaha River, there are 59 water rights totaling approximately 37.33 cfs. There are also approximately 69 water rights in the tributaries to the Imnaha River totaling about 24.98 cfs.

Recreational fishing for SR steelhead and SR spring/summer chinook salmon occurs in the Imnaha River subbasin. Although this fishing is directed toward hatchery-raised fish, incidental hooking of wild fish is a common occurrence. A similar situation exists for juvenile SR steelhead throughout the Subbasin, as there is no way for anglers to distinguish them from the resident rainbow trout for which they are legally fishing.

Significant improvement in SR steelhead, SR spring/summer chinook salmon and SR fall chinook salmon reproductive success outside of Federally-administered land is unlikely without changes in grazing, agricultural, and other practices occurring within these non-Federal riparian areas in the Imnaha River subbasin. Until improvements in non-Federal land management practices are made, NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

2.1.7 Conclusion

NOAA Fisheries has determined when the effects of the proposed subject actions addressed in this Opinion are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of SR steelhead, SR spring/summer chinook salmon, and SR fall chinook salmon or adversely modify designated critical habitat for SR spring/summer chinook salmon or SR fall chinook salmon. This conclusion was reached primarily because: (1) The use of comprehensive conservation measures developed with assistance with NOAA Fisheries and described above in detail in section 1.2 of this Opinion, will ensure potential adverse effects from in-water construction and road maintenance such as turbidity, minor increases in sedimentation, short term decreases in stream flow, and harassment of salmonids will be short-term and limited in scale; (2) replacement of culverts will improve fish passage throughout the subbasin and thus result in an improvement in the passage barrier habitat element for the three watersheds in the Imnaha River subbasin; (3) conservation measures developed with assistance from NOAA Fisheries and incorporated into the livestock grazing activities on the Marr Flat allotment will ensure that SR steelhead redd trampling is minimal and adverse effects to salmonid habitat will remain localized and limited in scope; and (4) the remote nature of this subbasin and the location of much of the headwaters in a wilderness area has resulted in generally good habitat conditions for salmonids, with most habitat elements rated as "properly functioning." Thus, the proposed action is not expected to impair currently properly functioning habitats, appreciably reduce the functioning of already impaired habitats, or retard the long-term progress of impaired habitats toward proper functioning condition essential to the long-term survival and recovery at the population or ESU scale.

2.1.8 Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of proposed actions on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NOAA Fisheries has no additional conservation recommendations regarding the action addressed in this Opinion.

2.1.9 Reinitiation of Consultation

Reinitiation of consultation is required if: (1) The action is modified in a way that causes an effect on the listed species that was not previously considered in the BA and this Opinion; (2) new information or project monitoring reveals effects of the action that may affect the listed species in a way not previously considered; (3) a new species is listed or critical habitat is designated that may be affected by the action; or (4) if the amount or extent of take specified in

the incidental take statement is exceeded or expected to be exceeded. (50 CFR. 402.16). To reinitiate consultation, WWNF must contact the NOAA Fisheries Habitat Conservation Division, Oregon Habitat Branch and **refer to: 2003/00553**.

2.2 Incidental Take Statement

Sections 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement. An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of Take

NOAA Fisheries anticipates that the proposed action is reasonably certain to result in the incidental take of listed species in this Opinion. The actions involving in-water work (culvert replacement and bridge work) are reasonably certain to result in some harm and harassment of rearing juvenile SR steelhead and juvenile and adult SR spring/summer chinook (non-lethal). Juvenile SR fall chinook are not expected to be in the project areas during construction, but it is probable that some adults will be present in areas downstream of the construction sites. These activities will also cause some minor amount of riparian disturbance and detrimental effects from increased sediment levels (non-lethal), possible contamination from pollutants from the large machinery that will be used during construction activities (lethal). It is also possible some fish may be crushed or otherwise injured or killed when heavy machinery enters the water although this is expected to be minimal (lethal).

Similarly, road maintenance activities are likely to result in some short-term adverse effects, mostly related to sediment and dust abatement chemical reaching streams. Additionally, water withdrawals for road maintenance will reduce flows resulting in adverse effects described in section 2.1.5 of this Opinion. Water quality, water quantity, and fine sediment levels in streams

will be adversely affected in the short term by these activities. Some harm and harassment of listed salmonids is also reasonably certain to occur, and in some circumstances, salmonid eggs and pre-emergent alevins may be killed by road maintenance activities. However, due to the conservation measures incorporated into these proposed actions, this expected to be minimal (lethal and non-lethal).

Livestock grazing on the Marr Flat allotment is expected to result in some trampling of SR steelhead redds due to the use of stream corridors for livestock movement (lethal). Livestock grazing in riparian areas can also result in the adverse effects to salmonid habitat as described in section 2.5.1 of the Opinion (non-lethal), although conservation measures included in the proposed grazing for this allotment should keep this disturbance minimal and localized.

Effects of those described above are largely unquantifiable in the short term. Survey data provided in the BA and available from ODFW indicates that SR steelhead, SR spring/summer chinook salmon, and SR fall chinook salmon are present throughout the action area. However, fish presence and abundance in any specific area where these activities occur is highly dependant on stream flow, temperature, and time of year. For this reason, NOAA Fisheries expects some low level incidental take to occur due to these in-water construction, road maintenance, and livestock grazing activities within the action area. However, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, the NOAA Fisheries designates the expected level of take as "unquantifiable." These effects are not however, expected to be measurable as long-term effects on habitat or population levels.

2.2.2 Effect of Take

In the accompanying biological opinion, NOAA Fisheries determined that this level of anticipated take is not likely to result in jeopardy to SR steelhead or SR spring/summer chinook salmon destroy or adversely modify designated critical habitat.

2.2.3 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of the above species. Minimizing the amount and extent of take is essential to avoid jeopardy to the listed species. The WWNF in respect to their proposed or ongoing activities addressed in the Opinion, shall:

1. Minimize the likelihood of incidental take of SR spring/summer chinook, SR fall chinook and SR steelhead resulting from in-water work associated with the LAA bridge work and culvert replacements.

2. Minimize the likelihood of incidental take of SR spring/summer chinook, SR fall chinook and SR steelhead resulting from livestock grazing on the Marr Flat allotment.

3. Minimize the likelihood of incidental take of SR spring/summer chinook, SR fall chinook and SR steelhead resulting from road maintenance activities.

4. Complete a comprehensive monitoring and reporting program to ensure: (1) Implementation of requirements found in this Opinion, and (2) measures incorporated into project design to minimize or avoid impacts to SR steelhead, SR spring/summer, and SR fall chinook or designated critical habitat are successful.

2.2.4 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, The WWNF must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. To implement reasonable and prudent measure #1 (in-water work), the WWNF shall ensure that:

   a. Cessation of work. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.
   b. Preconstruction activity. Before significant[3] alteration of the project area, the following actions must be completed.
      i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
      ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite:
         (1) A supply of sediment control materials (*e.g.*, silt fence, straw bales[4]).
         (2) An oil-absorbing, floating boom whenever surface water is present.

[3] "Significant" means an effect can be meaningfully measured, detected or evaluated.

[4] When available, certified weed-free straw or hay bales must be used to prevent introduction of noxious weeds.

iii. Temporary erosion controls. All temporary erosion controls must be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

c. Site preparation. Native materials will be conserved for site restoration.
   i. If possible, native materials must be left where they are found.
   ii. If vegetation needs to be cut to provide access to a site, clip vegetation close to the ground to preserve root stock wherever feasible.
   iii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.
   iv. Any large wood[5], native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.

2. To implement reasonable and prudent measure #2 (the Marr Flat allotment), the WWNF shall ensure that:

   a. Maintenance of exclosure structures. All exclosure structures, such as fences, designed to protect SR chinook and SR steelhead spawning and rearing habitat are properly maintained and operated.
   b. Monitoring. The following information is entered into the IIT database to generate a report for NOAA Fisheries detailing livestock grazing activities on the Marr Flat allotment as described in term and condition #4 of this Opinion. The following shall be included for each allotment:
      i. Overview of proposed action and actual management (livestock numbers, on-off dates for each pasture, and strategy);
      ii. specific WWNF implementation monitoring data, date, and location collected (stubble height, woody use, bank damage, unauthorized use, and fence maintenance);
      iii. any submitted permittee monitoring data;
      iv. review of management and compliance successes and failures and any transmittals/letters/actions addressed to/from permittees;
      v. new habitat trend or SR chinook or SR steelhead population data;
      vi. compliance with each pertinent term and condition contained in this Opinion;
      vii. and management recommendations for subsequent years.

[5] For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

3. To implement reasonable and prudent measure #3 (road maintenance), the WWNF shall ensure that:

   a. Road blading. Side casting of materials will not occur where these materials could be directly or indirectly introduced into a stream, or where placement of these materials will contribute to destabilization of the slope.
   b. Ditch maintenance. Undercutting of cut slopes will be avoided during ditch maintenance activities. Disposal materials will be deposited in approved disposal site. Leave live vegetation such as grass and other herbaceous vegetation in ditches wherever possible.
   c. Sediment control. If road maintenance activities such as ditch maintenance, ditch relief culvert repair, or culvert cleaning, is expected to generate significant amounts of sediment, sediment control measures such as silt fences or straw bales will be used.
   d. Dust abatement. Use dust abatement chemicals (magnesium chloride and lignosite) on roads in RHCAs only when a 25-50 foot or more buffer of well-vegetated ground exists between the road and the stream.[6]
   e. Water drafting. Water drafting will be conducted with following protective measures:
      i. Water source. Non-stream sources will be used instead of streams whenever feasible. When non-stream sources are unavailable, streams with the greatest flow will be used whenever feasible.
      ii. Stream flow. Water withdrawal will not reduce stream flow by more than 1/10th. For pumps with adjustable pump rates, pumping rates will be adjusted to avoid drafting more than 1/10th of the current stream flow.
      iii. Volume removed. If streams with less than five cfs are used for drafting, no more than 18,000 gallons will be removed in one day.
      iv. Number of pumps. If streams with less than five cfs are used for drafting, no more than one pump will operate at one time at any one drafting site.
      v. Adult fish. No water will be drafted from sites where adult salmonids are visibly present to prevent interference with spawning activities. If redds have been identified downstream of drafting sites, a WWNF fish biologist will ensure water drafting will not have adverse effects to eggs or emergent alevins.

4. To implement reasonable and prudent measure #4 (monitoring and reporting), the WWNF shall complete one of the following:

[6]An exception is granted for the Hat Point Road. Although Deer Creek is closer than 25 feet from the road, fish passage in this creek is blocked by a perched culvert just upstream from the confluence with the Imnaha River and the stream is typically dry during times when dust abatement chemicals are applied (July-September).

a. Monitoring Report. Provide NOAA Fisheries with annual monitoring report summarizing the following information for the previous years activities by March 1 of the following year

(or)

b. Forest-wide Monitoring Report. Include the following information in a comprehensive annual WWNF monitoring report on effects of activities to ESA-listed species. This report should be submitted to NOAA Fisheries by March 1 of the following year.

Regardless of the reporting format chosen, the report shall contain the following information:

i. Number and location of all culverts replaced.
ii. Update on progress of bridge repair and replacements.
iii. The monitoring for the Marr Flat allotment required by term and condition 2(b).
iv. All other monitoring information identified in the BA.

The annual report will be submitted to:

State Director - Portland
National Marine Fisheries Service
Attn: 2003/00553
525 NE Oregon Street, Suite 500
Portland, OR 97232

c. NOTICE. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to the:

National Marine Fisheries Service Law Enforcement Office
Vancouver Field Office
600 Maritime, Suite 130
Vancouver, Washington 98661
phone: 360.418.4246.

Care should be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. Besides the care of sick or injured endangered and threatened species, or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence with the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish, and may include aquatic areas historically used by fish where appropriate. "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities. "Necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem, and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH;

- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH;

- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and up slope activities, that may have an adverse effect on EFH. Therefore, EFH

consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.2 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for federally-managed fisheries within the waters of Washington, Oregon, and California. The PFMC has designated EFH for three species of Pacific salmon: Chinook salmon (*O. tshawytscha*); coho (*O. kisutch*); and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years). In estuaries and marine areas, designated salmon EFH extends from the near shore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border. Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species= EFH from the proposed action is based on this information.

3.3 Proposed Actions

The proposed actions are detailed above in section 1.1. The action area includes the Imnaha subbasin. This area has been designated as EFH for various life stages of chinook salmon.

3.4 Effects of Proposed Action

As described in detail in ESA portion of this consultation**,** the proposed activities may result in detrimental short-term adverse effects to a variety of habitat parameters.

3.5 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FS, all of the

reasonable and prudent measures and the terms and conditions contained in sections 2.2.2 and 2.2.3 are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH recommendations.

3.7 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.8 Supplemental Consultation

The FS must reinitiate EFH consultation with NOAA Fisheries if either action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries= EFH conservation recommendations (50 CFR 600.920).

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